Butchers' Meat,

and its Effects upon
the Human Body.

By Charles W. Forward.

> " Errors in diet are the great source of disease ; amendment of diet is the basis of recovery. The majority of our maladies medicine may relieve or suspend ; but without the aid of regimen, can never cure."—Thackrah : *Lectures on Digestion and Diet.*

> " It is so difficult to teach people not to confuse the dictates of the palate with those of the stomach ; to make them see that flesh-foods are but a stimulant, not a nutrition—a stimulant of a poisonous order. But a good beginning has been made ; not only the laity, but my professional brethren are coming over to our side."—Prof. Huchard, of the Academy of Medicine, Paris.

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CHAPTER I

INTRODUCTORY

THE increase in the consumption of butchers' meat in this country during the last sixty or seventy years has been remarkable, and it seems appropriate to enquire whether this change in the dietetic habits of the people has been advantageous, or the reverse.

Individual opinions have been expressed from time to time by various authorities, but there has, apparently, been no attempt to summarise their views in such a manner that any definite conclusions can be based upon them.

In the present book an effort has been made in this direction, and incomplete though it may be, it should, at least, suffice to form a basis for fuller enquiry upon this important subject.

Particular attention is directed to the fact that in the present volume, the effects of consuming the flesh of *diseased* animals has not been taken into consideration. It is assumed that the meat consumed has been supplied from the carcases of animals at least healthy enough to pass inspection, though there is evidence that a good deal of unsound meat does find its way into the hands of the public.

Dr. Alex. Marsden, F.R.C.S., Chairman of the Cancer Hospital, London, was informed that it is a very common practice with farmers, the moment they discover disease in sheep or cattle, to kill at once and prepare them for the market ; and, so skilfully can this be done, that animals suffering from anthrax, foot-and-mouth disease, tuberculosis, etc., are dressed up so that butchers and experts are deceived. The same thing is said to be going on in New Zealand and Australia, and other meat-producing countries. Dr. Alfred Carpenter caused a sensation when he stated, some years ago, that something like 80 per cent. of the butchers' meat in the London market was diseased.[1]

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[1] The condition of much of the meat sold to the public leaves a great deal to be desired. It was recently stated by the High Commissioner for the Commonwealth of Australia that a quantity of meat purchased by the British Government some four years ago was still stored at the Antipodes (*Truth*, Feb. 15, 1922), and it is a well-known fact that a considerable quantity of meat is kept in cold storage for long periods before being sold.

Meat is handled by dirty porters and carmen, carried in dirty trucks and wagons, exposed to the bacteria-laden dust of the public streets, and to contamination by flies, dogs, etc.

As offered for sale in the markets, fresh meat is, according to Dr. Kellogg, always swarming with putrefactive bacteria, among which is the deadly Welch's bacillus, the cause of gas gangrene.

A research carried out by the Meat Committee of the Food Investigation Board of Great Britain brought out the fact that the fungus which produces " black spot " on cold storage meats

Nor has it been possible to deal with the parasitology of meat-eating. The assumption, here again, has been that the butchers' meat consisted of the flesh of animals free from such parasites as *trichina spiralis* and *tænia solium*, etc. These risks are supplementary to, and separate from the general physiological disturbance which butchers' meat sets up in the human system—but they cannot be ignored.

The increased use of butchers' meat by the artizan class was noted as far back as 1848, and seems to have been fostered by accidental political and economic conditions, which, whilst increasing the spending power of the people, left them to the exploitation of the huge trusts and combines who have flooded this country with supplies of foreign meat. *One thing is certain—the dietary of the average Englishman of to-day has not been*

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will grow at a temperature nine degrees below freezing. Numerous other moulds grow well at the freezing point.

"Meat seriously diseased," declares Dr. Wynter Blyth, "may be so prepared as to look like fairly good meat; many an animal with advanced disease of the lungs yet shows no 'naked eye' appearance differing from normal in the flesh."

In the Fifth Report to the Privy Council, Prof. Gamgee stated that one-fifth of the total amount of meat consumed is derived from animals killed in a state of malignant or chronic

A Medical Officer of Health (Dr. J. Edwin Cooney) remarks: "There is no question about it, that owing to the evils likely to arise from imperfect supervision of private slaughterhouses, the present widespread ingestion of flesh is responsible to an appreciable extent for many diseases which now exist, and which vegetable eaters avoid."

arrived at by any reasoned scientific method, but is accidental and fortuitous.

Many years ago, General Perronet Thompson predicted that the abolition of the Corn Laws would result in the consumption by the artizan class, not of more bread, but of more butchers' meat, and this is what actually happened. In 1896, Dr. Maurel stated that the consumption of meat had more than tripled in fifty years.[1]

A great deal has been written and said since Liebig's time as to the relative values of foods, considered from the standpoint of the elements they contain. Elaborate food-tables have been published, too, in which the ratio of proteins, carbo-hydrates, fats, water, etc., has been set out; but, if any section of the public has been guided in its choice of food by these tables, it must be a very small one.

Apart from the regulation of dietaries for the Army, Navy, Prisons and Public Institutions the consideration of food ratios has had practically no influence.

The International Food Commission which met in London, Paris and Rome during the War (1914-18), had under consideration the question of a minimum meat ration, but the conclusion was arrived at that " no absolute physiological need exists for meat, since the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese, and eggs, as well as by proteins of vegetable origin."

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[1] Quoted by Dr. Paul Carton.

Careful observers such as the late Sir Henry Thompson have commented adversely on the habits of diet which prevail. That eminent physician writes :—" I have not hesitated to say that Englishmen generally have adopted a diet adapted for a somewhat more northerly latitude than that which they occupy ; that the cost of their food is therefore greater than it need be, and that their numerous forms of indigestion and much resulting chronic disease are further necessary consequences of the same error. They consume too much animal food, particularly the flesh of cattle."

" The popular idea that beef is the most strengthening of foods," writes Dr. Kellogg, " has no scientific foundation."

The increased appetite for and consumption of butchers' meat may be attributed to two main influences—the fact that it is easy to get, whilst well-prepared and appetising substitutes are not ; and the stimulating or exciting influence it exercises upon the system, thus conveying the impression of strength.

To the ordinary man with no knowledge of physiology this illusion is a very real one, though scientific authorities have frequently shown it to be misleading. Thus the late Sir T. Lauder Brunton remarked :—" We usually suppose that diet of meat is the best cure for failing strength; and, for weakly persons, we are accustomed to recommend beef-tea whenever they feel faint. But Ranke observed that an exclusively meat diet, instead of producing strength, caused weakness and muscular fatigue, the excess of waste nitrogenous products proceeding from the decomposition of this food in the organism seeming to act as a muscular poison."[1]

Prof. Bartholow declares:—"Nothing has been more conclusively shown than that beef-tea is not a food. It is nothing more than a stimulant. The chemical composition of beef-tea closely resembles that of urine, and it is more an excrementitious substance than a food." And Dr. Mortimer Granville has expressed an opinion not less unequivocal: "Beef, or meat teas, as ordinarily made, and Liebig's extracts stand on the same platform; they are not practically food. All the bloodshed caused by the warlike ambition of Napoleon is as nothing compared to the millions of persons who have sunk into their graves from a misplaced confidence in the value of beef-tea. Hundreds of our fellow creatures are daily dropping into their graves, unfed, unsuccoured, because beef-tea is given as a food—given for what it is not."[2]

[1] *The Practitioner*, Vol. XX., March, 1878.

[2] Quoted in *Veg. Year Book*, 1896.

In speaking of the comparative valuelessness of meat extracts, Mr. A. W. Duncan remarks that: "In Bovril and some other preparations, some meat fibre has been added with the object of imparting a definite food value. Hence in some advertisements, now withdrawn, it was alleged that the preparations were immensely superior in nutritive value to ordinary meat extracts. The Bovril Company extensively circulated the following:—'It is hard for ladies to realise that the beef-tea they make at home from the choicest fresh beef contains absolutely no nourishment and is nothing more than a slight stimulant. It is so, however, and many a patient has been starved on beef-tea, whether made from fresh beef or from the meat extracts that are sold to the public. From these Bovril differs so much that one ounce of its nutritious constituents contains more real and direct nourishment than fifty ounces of ordinary meat extract.' If analyses of meat extracts are referred to, it will be seen that the principal part of Bovril is the meat bases and other things common to all such extracts, and which the Company in their circular so emphatically condemn. If the meat fibre, which is the principal, if not the sole difference, is the only nourishing constituent, it is difficult to see the advantage over ordinary beef, which can be procured at a very small proportionate cost. Concerning this added meat fibre, Mr. C. A. Mitchell in *Flesh Foods*, writes : ' As this amounts to at most some 8 or 10 per cent., it is obvious that a large quantity of the substance would be required to obtain as much unaltered proteid as is contained in an egg. . . . " Concerning added albumin and meat fibre, A. H. Allen, in *Commercial Organic Analysis*, Vol. IV., ' The amount of these constituents present in such a quantity of meat extract as is usually, or could be, taken at a time is too insignificant to give it any appreciable value as nutriment.' Notwithstanding such statements by analysts and others, Bovril is advertised to contain ' the entire nourishment of prime ox-beef.' "[1]

Dr. Pavy states that : " Animal food exerts a greater stimulating effect upon the system than vegetable fare. Accounts are related of the stimulant properties of animal food having sufficed, in those accustomed only to a vegetable diet, to produce a state resembling intoxication."

Dr. Dundas Thompson quotes a narrative of the effects of a repast of meat on some native Indians whose customary fare consisted only of vegetable food. The expression of their countenances, their jabbering and gesticulations, showed clearly that the feast had produced the same effect as any intoxicating spirit or drug.[2]

[1] *The Chemistry of Food and Nutrition*, A. W. Duncan, F.C.S.

[2] *Experimental Researches on the Food of Animals.*

In commenting upon Liebig's *Extractum Carnis*, Dr. Pavy remarks that the fact that it is not an article of nutrition is gradually being recognised, and that its chief properties are those of a stimulant.[1] Describing the properties of a liquid essence of beef prepared according to his instructions, Dr. Druitt speaks of it as exerting a rapid and remarkable *stimulating power over the brain*, and introduces it to notice as an auxiliary to, and partial substitute for brandy, in all cases of exhaustion or weakness attended with cerebral depression or despondency.[2]

Dr. Anna Kingsford relates an instance of a young lady of nervous temperament, who but very seldom ventured to partake of more than a single plate of animal viands at the same meal, for fear of becoming excited. One day, being very hungry, she transgressed her rule and ate two mutton chops, the result resembling an actual fit of intoxication.[3]

According to the analyses of Gautier, a quart of beef-tea contains enough creatin to kill nine guinea-pigs.

Two-thirds of an ounce of Liebig's extract of beef added to the regular diet of a dog weighing fourteen pounds produced diarrhœa on the sixth day and death from collapse on the ninth.

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[1] *Digestion, its Disorders and their Treatment.*

[2] *Transactions of the Obstetrical Society.*

[3] *The Perfect Way in Diet.*

In seeking, therefore, an explanation of the increased use of butchers' meat by civilised peoples, the toxic and stimulating influence it exerts, and to which reference has been made, cannot well be ignored. There is associated with a dietary in which butchers' meat plays an important part, a sense of what the French describe as "*bien être*," which may easily lead those who are ignorant of physiology to the conclusion that it *is* actually a source of strength; and such an idea is further enforced by the fact that the temporary exclusion of "meat" from the dietary is followed by a feeling of depression. Regular indulgence in any stimulant has the same disadvantage, that its temporary withdrawal brings about a sensation of weakness. Thus, the habitual user of spirits, tea, or coffee, will suffer from deprivation of his favourite beverage, even though it be a pure stimulant, possessing no nourishing properties!

Whether such physical exaltation as follows the use of butchers' meat is desirable or otherwise is an arguable question. Dr. J. Watkin Edward remarks on this subject: "The enormous increase in the consumption of animal food is a phenomenon of the present generation, and the good problematical. To our forefathers, meat was almost a stranger, except on one or two days a week, and there is no conclusive proof that they were any the worse on that account." It is important to consider seriously whether any apparent advantage is not greatly outweighed by the moral and physical evils directly or indirectly traceable to our modern and acquired habits of diet.

Disease is not only induced by disturbing causes in the first place, but it is kept up by the continual action of such causes. It is true that when the action of disturbing causes has induced diseased structure in our organs, this, while it remains, will, in the absence of all other morbific causes, keep up diseased action to a greater or less extent in the system.[1]

" But, as a general law, in chronic complaints, where change of structure has not actually taken place and gone too far, diseased action will not long continue after the entire removal of the disturbing causes ; and hence, *chronic disease is in almost every instance kept alive and cherished from day to day, from month to month, and from year to year, by the constant action of those disturbing causes, which are mostly to be found in our dietetic and other voluntary habits.*"

" The great question is, how to remove all irritation from the system, and restore each part to healthy action and condition. But almost all the articles of medicine, not excepting those called tonics, are either

[1] See Dr. A. Rabagliati, p. 106.

directly or indirectly irritating or debilitating in their effects upon the living body and therefore should be avoided as far as possible. Many of the articles of diet ordinarily used in civilized life are also decidedly irritating and pernicious; and many of the modes of preparing food are sources of irritation to the system. In fact, when the body is seriously diseased, even the necessary functions of alimentation, under the very best regimen, are, to a considerable extent, the sources of irritation; and were it possible to sustain life without nutrition, entire and protracted fasting would be the very best means in many cases of removing disease and restoring health. I have seen wonderful effects result from experiments of this kind."

"But nutrition must be sustained; and the grand problem is, how it can be sustained to the necessary extent, with the least degree of irritation to the diseased parts, or with the least possible increase of diseased action. In solving this problem, the physician requires the aid of profound science. It is necessary that he should thoroughly understand the physiological properties and laws of the human body, and its constitutional relations, and the qualities of alimentary and medicinal substances in relation to the organization and to the vital powers of the body."

"With such scientific qualifications, with sound judgment and mature experience, he will be able to adapt his regimen to the particular condition of his patient—to remove as far as possible every irritating cause in the quality, quantity, and condition of the diet, and to retain only such articles as will afford sufficient salutary nourishment, with the least degree of irritation and excitement; while, at the same time, it is best adapted to promote particular and general functions of the alimentary and other organs of the system."

"Such a physician, if he gives his mind fully to the subject, will discover in the course of a few years, at longest, that, though in particular cases, where individuals have long been accustomed to a free use of animal food, it may be inexpedient to make too sudden and entire a change of diet, and though great improvements may be made in health, on a *plain and temperate* mixed diet, and, in some instances, the patient may increase in flesh and strength most rapidly, for a season on animal foods,[1] yet, as a general fact, however well ordered his regimen in other respects, if he retains any portion of flesh-meat in the diet of his patient, he in some measure retards, if he does not prevent, his complete restoration to perfect and permanent health."[2]

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[1] See also Dr. A. Haig, page 18.

[2] S. Graham's *Lectures*.

As far back as 1892, the author pointed out that "it was beginning to be recognised by medical men that a dietary too rich in nitrogenous principles is productive of a variety of disorders, a fact that is more easily understood when the source of such elements is taken into consideration. In a properly-selected vegetable dietary the food elements are presented in the condition best suited for assimilation. There is no waste, no *débris*, or broken-down material to be dealt with. In the flesh of every animal, on the other hand, there is a constant change going on whereby what are called "extractives" are formed."

"These extractives are nitrogenous substances, kreatin ($C_4H_9N_3O_2$) and kreatinine ($C_4H_7N_3O$), and should be looked upon as histolytic, rather than histogenetic, being practically *effete* muscular matter on the road to urea. Albumen is a nitrogenous principle from which the tissues of the body can be formed, but it is impossible to obtain it in flesh-food free from the effete, used-up extractives above referred to. It is, in this light, easy to understand Milner Fothergill's statement that 'the food element which furnishes uric acid is the albuminoid or proteid matters. The flesh of animals is the main source of gout poison.' The products of retrograde metamorphosis arise from two causes—tissue waste and the *luxus* consumption of albuminoid food, and, not only gout, but quite a number of acute diseases are undoubtedly favoured by the impure condition of the blood arising from the use of flesh-food."[1]

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[1] *The Case against Butchers' Meat.*

CHAPTER II

THE PRINCIPLES OF DIET

OPINIONS respecting food have undergone, and are still undergoing change, but, for our present purpose, the generally accepted standards may be taken as the basis of investigation. Foods are usually divided as follows :—

Carbo-hydrates (Starches and
Sugars).
Fats.
Proteins (Flesh, Egg-albumen,
Casein of Cheese, Gluten
of Cereals, etc.).
Vitamins.

There are in addition, Organic Salts (not to be confounded with Sodium Chloride, or Table Salt) and Water, which latter is rather to be considered as a medium for conveying the necessary elements to, and the waste material from the various tissues. "Butchers' meat," writes Dr. Kellogg, "stands near the head of foods poorest in lime salts."

Various estimates have been made as to the respective amounts of the principle elements should go to make up a dietary. The following table gives a selection from different authorities :

	Protein.	Carbohydrates.	Fats.	Fuel value.
Hultgren and Landergren	134 grams	523 grams	79 grams	3436 calories
Moleschott	130 ,,	550 ,,	40 ,,	3160 ,,
Atwater ..	125 ,,	400 ,,	125 ,,	3315 ,,
Voit	145 ,,	500 ,,	100 ,,	3574 ,,
Ranke	100 ,,	240 ,,	100 ,,	2324 ,,
Chittenden	44·9 ,,	253 ,,	38·0 ,,	1606 ,,

It will be observed that there is a marked discrepancy between the various authorities. Chittenden's estimate of protein requirements is less than one-third that of Hultgren and Landergren, and as his estimates were based upon careful and elaborate experiments, they have materially modified the views formerly held. His conclusion is that there is no real physiological need—that is apparent—for the adoption of such dietetic habits as ordinarily prevail, or as are called for by the dietary standards set by most authorities on this branch of physiology.[1]

The Proteins and Fats are the most expensive elements in food, and it follows that a reduced ratio in these elements, if it can be brought about without the sacrifice of physiological efficiency, is important from the standpoint of economy. It is important, according to Voit, from a *physiological* standpoint also, for he has emphasized the general principle that the smallest amount of proteid, with non-nitrogenous food added that will suffice to keep the body in a state of continual vigour, is the ideal diet.

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[1] *Physiological Economy in Nutrition*, page 128.

Butchers' meat, containing, as it does, over seventy per cent. of water, is relatively one of the most expensive of foods. "The commonly accepted notion that when we eat animal flesh we are eating food at its prime source cannot be too speedily dissipated, or too speedily replaced by the knowledge that there is no primitive form of food—albuminous, starchy, osseous—in the animal world itself, and that all the processes of catching an inferior animal, of breeding it, rearing it, keeping it, killing it, dressing it and selling it mean no more and no less than entirely additional expenditure throughout for bringing into what we have been taught to consider an acceptable form of food, the veritable food which the animal itself found, without any such preparation in the vegetable world."[1]

"Many people," writes Dr. F. W. Pavy, "seem to look upon meat almost as though it formed the only food that really nourished and supplied what was wanted for work.

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[1] Sir B. W. Richardson. Article on "Food Thrift," in *Modern Thought*.

The physician is constantly coming across an expression of this view. Undoubtedly a greater feeling of satiety is produced by meat than by other food. It forms a greater stay to the stomach. But this arises from the stomach constituting the seat of its digestion, and a longer time being occupied before it passes and leaves the organ in an empty condition."[1]

The same writer remarks that "the prevailing tendency, certainly in the England of the present day, is to give an undue weight to the value of animal food, and this has been encouraged by the teachings of Liebig regarding the origin of muscular power—teachings which, during the last few years, have been shown to be untenable."[2]

It is not so much, however, the question of the relative cost and nutritive value of butchers' meat as compared with other foods, that we are now dealing with, but rather the *physiological prodigality* involved, and the direct or indirect influence of our present dietetic habits upon health. As Chittenden puts it: "Certain general standards have been more or less widely adopted, but a careful scrutiny of the conditions under which the data were collected leads to the conclusion that the standards in question have a very uncertain value, especially as we see many instances of people living, apparently in good condition, under a regimen not at all in harmony with the existing standards. . . . if through years and generations of habit we have become addicted to the use of undue quantities of proteid foods, quantities way beyond the physiological requirements of the body, then we have to consider that this excess of daily food may be more or less responsible for many diseased conditions, which might be obviated by a more careful observance of the true physiological needs of the body."[1]

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[1] *A Treatise on Food and Dietetics.*

[2] Op. cit.

The same authority points out that fats and carbo-hydrates when oxydized in the body are ultimately burnt to simple gaseous products, viz., carbonic acid and water. Hence these waste products are easily and quickly eliminated and cannot exercise much deleterious influence even when formed in excess. To be sure, there is waste of energy in digesting, absorbing, and oxydizing the fats and carbo-hydrates when they are taken in excessive amounts. Once in the alimentary canal they must be digested, otherwise they will clog the intestine, or undergo fermentation and so cause trouble.

Further, when absorbed, they may be transformed into fat and deposited in the various tissues and organs of the body; a process desirable up to a certain point, but undesirable when such accumulation renders the body gross and unwieldy.

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[1] *Physiological Economy in Nutrition*, Russell H. Chittenden.

With proteid foods, on the other hand, the story is quite different. These substances, when oxydized, yield a row of crystallized, nitrogenous products which ultimately pass out of the body through the kidneys. Prior to their excretion, however, these products—frequently spoken of as toxins—float about through the body and may easily exercise more or less of a deleterious influence upon the system, or, being temporarily deposited, may exert some specific or local influence that calls for their speedy removal. Hence, the importance of restricting these bodies to the minimal amount, owing to their possible physiological effect and the part they are liable to play in many diseased conditions.[1]

Even at the period when the opinion prevailed that a diet rich in proteid elements was desirable, the fact that butchers' meat was not the only (or the most economical) source of nitrogen was recognised in scientific circles. Professor Huxley declared: "If it was my duty to put a pound of flesh on a man, it would cost me 1s. 8d. to 2s. 0d. to do that out of flesh; 1s. 4d. to do it out of potatoes, but in the shape of peas I could do it for 3d."[2]

[1] Op. cit.

[2] *International Health Exhibition Literature*, Vol. VI.

Professor A. H. Church estimates the proteid elements of various foods as follows :

	Proteins.
1 lb. Beef	1oz. 122grs.
,, Mutton	0oz. 385grs.
,, Peas	3oz. 255grs.
,, Haricot Beans . .	3oz. 297grs.
,, Lentils	3oz. 367grs.

According to Frankland one pound of LEAN BEEF, if digested and oxydized in the body, might produce an amount of force equal to 885 tons raised one foot high ; whilst one pound of DRY PEAS, when digested and oxydized in the body, might liberate force equal to 2,341 tons raised one foot high.

The greatest amount of external work than one pound of LEAN BEEF would enable a man to perform is 177 tons raised one foot high ; and the greatest amount of external work one pound of DRIED PEAS would enable a man to perform is 468 tons raised one foot high.[1]

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[1] *South Kensington Museum Science Handbook : Foods.*

CHAPTER III

THE EFFECTS OF BUTCHERS' MEAT ON THE MOUTH AND TEETH.

AMONGST civilized communities the flesh of mammals is only eaten after being cooked, and in this country it is almost invariably served with vegetables, salt, or substances derived from the vegetable kingdom, which impart their flavouring to it. It is a popular error to suppose that the various flavours attributed to alimentary substances are appreciated by means of the tongue, or what are called "the nerves of taste." With the exception of sweet, sour, salt and bitter, all our countless gastronomic delights come to us through the sense of SMELL. With the nose pinched between the fingers, or its olfactory nerves thrown out of action owing to a cold, it is almost impossible to distinguish between the various kinds of meats, vegetables, sweets or cheeses. H. T. Finck points out that vinegar is "uninteresting unless it possesses a 'bouquet'—the aroma of the cider, wine or malt of which it was made," and he remarks that people will pay fancy prices for flavoured "sweets," not for the sugar, but for the vanilla, chocolate, peppermint, etc., they contain, and which they exhale during the process of mastication. The expedient of pinching the nose of a child whilst administering cod-liver oil is well known. The oil comes into contact with the nerves of taste, but its aroma does not reach the olfactory nerves, and the child does not "taste" it.

The mere *odour* that arises from the kitchen whilst, say, onion soup is being prepared, helps to excite an appetite.

It seems probable that the special senses are affected injuriously by the use of butchers' meat, and there would appear to be scope for careful observation on this point. In the well-known case of Caspar Hauser, it is stated that the smell of fresh meat was to him the most horrible of all smells, and that when Prof. Daumer walked with him near a churchyard in the vicinity of Nuremburg, the smell of the dead bodies—of which the professor had not the slightest perception, affected him so powerfully, he was immediately seized with an ague and began to shudder.[1]

The author's own experience suggests that the use of butchers' meat tends to dull the sense of smell. The odour of meat, when passing a butcher's shop is most nauseating. It invariably recalls a badly ventilated Turkish Bath once visited many years ago in a small provincial town.

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[1] R. D. Mussey, M.D., LL.D., *Health: its Friends and Foes.*

As already stated, butchers' meat is eaten with substances which impart a flavour, and in many cases completely mask any flavour the meat may possess *sui generis*. Thus salt, mustard, pepper, vinegar, etc., are used largely at almost every meat meal. Then, there are numerous manufactured sauces such as "Worcester Sauce," whilst the English *cuisine* demands for almost every variety of meat its appropriate accompaniment.

Roast beef is served with baked potatoes and horse-radish, boiled beef with carrots, boiled mutton with turnips and onion or caper sauce; roast pork with stuffing and apple sauce, etc., etc.

These added flavourings seem to have been popular from early times, for it is noticeable that the children of Israel pined, not only for the "fish, which we did eat in Egypt freely," but also for "the cucumbers and the melons, and the leeks, and the onions, and the garlick."

Although it cannot be said that fresh, or untainted flesh is, in itself, without flavour, there is little to appeal to the palate of a person of normal taste, without the addition of condiments or flavouring agents. One of the most commonly used condiments is chloride of sodium (table salt), which is not a food substance at all, and can apparently be dispensed with as an article of diet. Yet it is used in large quantities by those who eat butchers' meat, and the flavour it imparts is associated in the minds of many persons with that of the particular viands to which it has been added. This is especially the case with salted meats such as salt beef, ham, bacon, etc. The salt thus added gives a fictitious flavour to the food, which otherwise would be flavourless and mawkish.

" After centuries of meat-eating nobody enjoys meat taken quite alone. Even the disguise of roasting fails to make it a natural food, and your finest slice of beef would be rejected if it were not for the condiments, the sauces, the vegetables, and, *optimum condimentum*, hunger."[1]

When a morsel of meat is placed in the mouth by itself it does not excite any marked action of the salivary glands, nor lend itself to the process of mastication. The cutting teeth of the dog and other carnivorous animals are replaced in man by molars or grinding teeth, and the fibres of lean meat can merely be *crushed* in the process of mastication.

This process results in the expression of some of the juices, the extractive matters of which possess a certain flavour, but this is not sufficiently marked to appeal to the average palate unless condiments are added or vegetables are eaten and masticated in conjunction with the meat.

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[1] Hon. and Rev. Canon Lyttelton, *Food and Common Sense.*

" The longer carbo-hydrates are masticated, the sweeter they become, from the development of saccharine material; but as proteins have no flavour other than that imparted by the extractives with which they are associated, there is no pleasure to be derived from their prolonged retention in the mouth."[1]

Sir Arthur Keith remarks on the subject of physical degeneration, that there are two parts or regions of the human body which seem to be in a state of change, firstly, the whole system of mastication—the teeth, the jaws, the face, and throat; and, secondly, the lower part of the bowel—the appendix, the cæcum and colon. " There is every reason," he declares, " to suppose that the degenerative changes in these two regions of the body are manifestations of a common cause; the races in which we find irregular teeth, contracted jaws, constricted throats, are also the races who are subject to diseases of the appendix, cæcum and colon. . . . It may be that these changes which are taking place in the national physique are due to an alteration in the kind of food on which we modern peoples live. Our alimentary system was originally evolved to cope with the raw food of primitive man.

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[1] Dr. Alexander Bryce, *Modern Theories of Diet.*

Our digestive system may be unbalanced by the nature of our diet."[1]

And, again : " We may also infer that the disturbance which is so widely affecting our teeth, jaws, nose and face is a consequence of that change of dietary. . . . All we can say at present is that a retrograde change does appear to be at work on the faces and jaws of highly civilized peoples, and that the change is probably due to diet. Our diet has been altered, but we can hardly expect nature to provide us at once with a mouth and teeth suitable to the new conditions of living."[2]

" Here is a community of civilized individuals," writes Dr. Leonard Williams, " whose members to the extent of 85 per cent. suffer chronically from the cradle to the grave from diseases and disorders of the bucco-gastro-intestinal tract. They suffer from dental caries, adenoids and tonsils, dyspepsias, pancreatic and hepatic disorders, appendicitis and constipation, and the long tract is dotted and punctuated with malignant disease. What is the cause ? Now, if I were to state this problem to anyone with a scientific training, I venture to say that his instant reply would be ' Inquire into the dietetic habits of this community, and correct some error which must be staring you in the face.' "

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[1] *The Human Body*, Arthur Keith, M.D., LL.D.

[2] Op. cit.

During the process of mastication small particles of meat fibre become detached and find lodgment between the interstices of the teeth. Here they decompose, and bacteriological action is set up as a result, for the ordinary methods of cleaning the teeth frequently fail to remove them. This is probably one of the active causes of dental decay, and also of that very prevalent disorder—pyorrhœa. Concurrently with the extended use of butchers' meat there has been a marked and alarming increase of dental deterioration. The editor of the *Medical Press* recently remarked that: "So bad are the teeth of our countrymen that it would require an army of some 30 or 40 thousand dental surgeons to cope with them. Nine-tenths of the dental disease among us is preventable." Mr. Arthur S. Underwood states that dental caries is more prevalent among English-speaking and other civilized races at the present time than it has ever been in the world's history. It is at least ten times as common in England and America to-day as it was even 150 years ago."[1]

In an examination of 10,500 school children the British Dental Association found 86 per cent. suffering from more or less pronounced defects of the teeth—the result of a diet lacking in the essential mineral elements upon which the bones and teeth depend for their development.[1]

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[1] *Nineteenth Century.*

In the course of a summary as to the physical condition and defects of 10,000 recruits whom he examined, Dr. J. Comrie states that at the age of 18 he found the teeth generally sufficiently good for practical purposes, although frequently, even then, the upper incisors were beginning to decay. With advancing age the state of the teeth became progressively worse, and of the sample 10,000 recruits, 928 had artificial teeth, whilst another 1,120 were urgently in need of them. It should be remembered that the men examined were in the prime of life, from 18 to 41.[2]

It has already been shown that butchers' meat does not compel mastication, and failure to masticate is held by many to be a cause of disorders of the throat and nasal passages. Prof. Keith's views have also been quoted. Mr. Horace Fletcher asks: "Is it any wonder that the modern child should be liable to disease in these regions, that he should so frequently suffer from rhinitis, naso-pharyngitis, tonsillitis, and from hypertrophy of the pharyngeal tonsil ('adenoids'), and of the faucial tonsils?"

"It is in this way that I would explain the frequency of adenoids among children of civilised communities. I claim, in fact, that this disease is largely dietetic in origin. I submit that a child whose nasal apparatus and naso-pharynx are well grown and habitually bathed by a stream of pure blood and lymph, periodically accelerated by an ample and vigorous use of the masticatory muscles, is unlikely to contract adenoids."[1]

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[1] Thomas J. Regan, *Teeth and Health*, page 72.

[2] *The Lancet*, Nov. 29, 1919.

Mr. Fletcher attributes early decay of the teeth to the use of "soft pappy foods," but it is interesting to note that a qualified observer, Dr. A. Berlyn, L.D.S. (Glasgow), does not adopt this view. He remarks: "The natives who live on soft, pappy foods are far more immune from dental caries, not only than the people who never touch this sort of food, but even than those of their own race who live partly on flesh diet and partly on soft food. . . . Take the raw native who comes in from the kraal, who is little more than a savage, and who has never subsisted on anything but soft mealy pap. When he first comes into a civilized town from his wild state of existence, in ninety-nine cases out of a hundred he will be found to possess a perfect set of thirty-two sound, beautifully formed, milky-white teeth, free from any taint of tartar or other discoloration, and seldom if ever malformed or irregular. But examine the same teeth, say a year or two after the native has lived in a civilized sort of town, partaken of flesh-food (while deserting his beloved pap)—food that has been prepared by civilized people, spiced and condimented, and you will find caries and other dental troubles similar to those found in any white man reared and fed as the latter usually are."[1]

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[1] Horace Fletcher, *The A.B.—Z of Our Own Nutrition.*

Mr. W. A. Sibly, M.A., quotes the case of a mother who recommended prunes, mashed bananas, porridge, sponge cakes, milk puddings, etc., for children. The prophecy of a medical man that the children so fed would all need false teeth before they were ten, was falsified by the results, for the boys grew up with perfect sets of teeth, and the elder was easily the strongest of 200 boys at Wycliffe School.[2]

"The condition of the upper respiratory passages is," remarks Dr. Alex. Haig, "generally a matter for the surgeon; but, as I think, there is reason to believe that an excess of uric acid in the blood may by affecting their circulation tend to produce or keep up congestion of the nasal or other mucous membranes, I should be inclined, where such local troubles are slight and merely congestive, to give diet a careful trial before resorting to surgery."[3]

Dr. Haig quotes a statement from Dr.

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[1] Note on the Cause of the Prevalence of Dental Caries, *Brit. Journal of Dental Science.*

[2] *Veg. Messenger*, April, 1923.

[3] *Uric Acid as a Factor in the Causation of Disease*, chap. 9.

Mackie, of Nottingham, that he has noted an almost constant connexion between catarrhal conditions of throat and ear, adenoids, etc., and the uric acid diathesis. In a letter to Dr. Haig, Dr. Mackie remarks : " I scarcely see a case of adenoids, say in a child, but where there is an arthritic or migrainous parentage." It is obvious, as Dr. Haig points out, that such conditions may quite easily result from recurrent uratic irritation.[1]

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[1] Op. cit.

CHAPTER IV

THE EFFECTS OF BUTCHERS' MEAT UPON THE DIGESTIVE ORGANS

THE most marked effect of butchers' meat upon the stomach is that of a STIMULANT, imparting, as it does, an *almost immediate* sense of added strength and vigour. A cup of hot bouillon or meat extract, will, in the same way, confer a false sense of sustenance.

This stimulating or exciting influence of flesh foods has already been referred to, and *it is probable that meat owes its popularity as a food largely to its stimulant action.* Man is not a reasoning animal, or, perhaps, it would be more correct to say that he reasons badly, and allows his judgment to be warped by his passions and prejudices. Be this as it may, it is certain that the desire for stimulants and excitants is practically world-wide, and is especially marked in civilized communities. " Everywhere, in all ages, as far as I can ascertain," writes Canon Kingsley, " has man been inventing stimulants and narcotics to supply that want of vitality of which he is so painfully aware. . . . He knows usually that he is not what he ought to be; that he carries about with him, in most cases, a body more or less diseased and decrepit, incapable of doing all the work he feels that he himself can do."[1]

" While it is true that meat, especially lean meat, is more readily digested in the stomach than coarse vegetables, and is less likely to ferment, forming gas and irritating acids in the stomach, than are saccharine and starch foods, it is nevertheless true that meats are, of all foods, most exciting and stimulating to the stomach, and in some cases gastric catarrh and other stomach disorders may be attributed to the excessive use of meat."[2]

And in the same work, Dr. Kellogg remarks : " Flesh foods require strong digestive powers to digest them, since they are not naturally adapted to the human stomach."

Dr. Bonnejoy (du Vexin) quotes Dr. Dock as follows : " Les nerfs sont excités, fatigués, abîmés ; le cerveau est surexcité ou ébranlé, surtout par ce prétendu ' régime fortifiant des viandes ' ; qui affaiblira de plus en plus l'humanité."

" La goutte, la gravelle, le pléthore abdominale, l'obésité, les maladies du foie et leurs suites : l'hypochondrie, le spleen, le dégoût de la vie tiennent à la même cause ; de même l'apoplexie qui enlève très souvent d'une manière foudroyante les hommes les plus robustes. . . .

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[1] Quoted in *The Tree of Knowledge*, 1875.

[2] *The Stomach : its Disorders and How to Cure Them*, J. H. Kellogg, M.D.

"L'alimentation animale excessive de nos jours est une des causes les plus fréquentes de nos maladies les plus dangereuses et de la mort souvent prématurée.

"Nous défions tout médecin sérieux et observateur de nier ce fait."[1]

But as flesh-meat is more stimulating to the system in proportion to the nourishment which it affords than pure vegetable aliment is, so all the processes of assimilation and nutrition in the use of the former are more rapid, and attended with a greater expenditure of vital power and waste of organised substances than in the use of the latter. The flesh-meat in the stomach, the chyme formed from it in the alimentary cavity, the chyle in the lacteals, the blood in the heart, arteries, veins, and capillaries, and all the fluids and substances elaborated from the blood, are more exciting to the parts on which they severally act, and cause a greater intensity and rapidity of vital action and expenditure in the whole system, than is affected by alimentation, digestion and nutrition, in the use of pure and proper vegetable food. . . . As flesh-meat passes more rapidly through all the processes of assimilation than most kinds of vegetable food, it is generally supposed to be more easily digested, and consequently the most suitable food for the dyspeptic and those of feeble digestive powers ; and hence it has been a prevailing practice among physicians to prescribe for such persons a diet consisting mostly of flesh-meat. While animal food passes through the stomach in a shorter time than most kinds of vegetable aliment, and therefore has been supposed to be more easily digested, yet it actually draws upon that organ for a greater sum of vital energy, and leaves the stomach much more exhausted from the performance of its function than vegetable food does.[1]

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[1] *Le Vegetarisme.*

According to Dr. Paul Carton, " there is clear evidence in medical practice of the part played by meat in causing dyspepsias, enteritis and appendicitis ; in favouring the outbreak of typhoid and dysentery ; in forming the rallying ground for the germs of tuberculosis and cancer ; and all this evidence is supported by the significant fact of the success attending its suppression in cases of affections of the liver, stomach, intestines, and even tuberculosis."[2]

Although the more soluble portions of butchers' meat are digested in the stomach, it is not entirely disposed of in that organ, but passes with other partially-digested food into the duodenum or upper portion of the bowel. Here, owing to its putrefactive tendency, it constitues a danger, as the toxic substances which are produced are liable to be absorbed into the blood. Roger states that "Flesh and meats kept for a length of time undergo the influence of bacterial growths, changes which render them toxic. . . . . The digestive tube of man is much more sensitive to these poisons than that of animals." Strasburger and other authorities estimate that 128,000,000,000,000 bacteria are produced in the intestinal canal every twenty-four hours, many of which generate extremely virulent poisons. Carbohydrates, or sugar and starchy foods ferment, but the process of fermentation is attended by the production of simple acids, only harmful in excess. The putrefaction of butchers' meat is attended, however, by the production of deadly poisons. Bouchard long ago proved that an extract prepared from the contents of the bowel was capable of manifesting highly toxic effects, and he found that the toxicity of the fæces of a person living on a mixed diet was twice as great as that of one living upon a diet from which butchers' meat was excluded. Herter also remarked upon the highly poisonous properties of the fæces of carnivorous animals, as compared with herbivorous animals.[1]

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[1] Graham's *Lectures on the Science of Human Life.*

[2] See *La Tuberculose par Arthritisme*, Paul Carton (Maloine, Paris).

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[1] Alexander Bryce, M.D., *Intestinal Toxæmia.*

"Perhaps the best substantiated view . . . is that natural death of the individual results from self-poisoning. The waste products of metabolism, some of them toxic, accumulate in the tissues and there results a true intoxication of the latter. We may try to transcribe this into a little more definite physiological phrase; death follows on account of the insufficiency of the excretion process, therefore the limit of life is a matter of excretion."[1]

Metchnikoff held the view that the inherited structure of the human intestine and the customary diet of civilized man are specially favourable to the multiplication of a large number of microbes that cause putrefaction. The avoidance of alcohol and the rigid exclusion from diet of foods that favour putrefaction, such as rich meats, and of raw or badly cooked substances containing microbes, do much to remedy the evils.[2]

"Not only," he declares, "is there auto-intoxication from the microbial poisons absorbed in cases of constipation, but microbes themselves may pass through the walls of the intestine and enter the blood."[3]

Dr. Bryce states that all that is necessary to insure the diminution of intestinal putrefaction is to decrease the consumption of such protein foods as flesh foods and egg, and increase the consumption of milk, cheese, and farinaceous foods, and to diminish the amount of fluid drunk at meal times.[1]

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[1] Prof. T. H. Montgomery, junr.

[2] Introduction to *The Prolongation of Life*.

[3] Op. cit., page 71.

Discussing Metchnikoff's suggestion that the appendix, cæcum and colon are useless structures in the body of man, Sir A. Keith observes that, " if Metchnikoff's system is well founded, then the colic system of man is a gigantic blunder in animal construction. We have always supposed that nature made no mistakes. . . . What little we know of the function of the colon favours the opinion —for our knowledge as yet is only a collection of opinions founded on a few facts—that the fault lies not in the colic system but in the nature of the work it is asked to perform in modern man. Its main work in our ancestors consisted in the digestion of the cellulose or husk elements of grains and of fruit and vegetables. Our modern dietary has called upon it to act upon a dietary totally different to that for which it was evolved. Should we then blame the colon and call it a useless structure ? "[2]

In acute gastritis Kellogg advises that meat should be " carefully avoided, as most harmful."

The frequent occurrence of inflammatory disorders among meat-eating communities would seem to indicate a connection between the two. Intestinal stasis (constipation) is one of the commonest disorders of civilized life, and is, undoubtedly, contributory to many diseases of the intestinal tract. Appendicitis seems peculiar to meat-eaters. It had long been supposed that this disorder was associated with the presence of a foreign body which acted as an irritant and set up inflammation in the appendix. Sir Frederick Treves describes inorganic concretions he has found in the appendix and which bear a "close resemblance to certain vegetable products. The smallest are readily mistaken for tomato seeds and fig-seeds, the larger for orange pips, grape-seeds, or grains of wheat, and the largest for cherry-stones and date-stones. I possess two concretions which before section I could not tell from a cherry-stone and a date-stone respectively. I have never found such seeds or fruit-stones in the appendix, and I believe them to be exceedingly rare. It is impossible to understand how a cherry-stone or date-stone, or even an orange-pip could enter the appendix, and the imitation made by a concretion is so exact, that I am disposed to think that very many of the reported cases of foreign bodies are examples of concretions."[1]

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[1] *Intestinal Toxæmia*, page 23.

[2] *The Human Body*, by Arthur Keith, M.D., LL.D.

In view of a prevalent belief that seeds and fruit-stones are capable of finding their way into, and setting up inflammation of the appendix, this emphatic opinion of so high an authority is important.

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[1] Allbutt's *System of Medicine*: Art., Perityphlitis.

Sir Frederick Treves remarks that the commonest exciting cause of appendicitis (perityphlitis) is the lodgment of undigested matter or of fæcal masses in the colon. He states that milk and much animal food seldom appear to answer in the treatment between the attacks. He points out the fact that the *bacillus coli communis* exists normally in the bowel, and that its virulence varies greatly. "It would appear to be harmless when taken from the normal intestine, but should the bowel become the seat of any morbid change the bacillus becomes virulent at once. Virulence has been found in cases in which the bowel was obstructed, strangulated or inflamed; in congestion of the intestine; in diarrhœa; in advanced constipation, and in other abnormal states. This point is of no little moment in the etiology of perityphlitis."[1]

The conditions favourable to the virulence of *bacillus coli communis* would appear to be those brought about by a free indulgence in animal food.

The normal flora of the colon is fermentative, or acid-forming. The dominant organism is *bacillus acidophilus*, a germ which produces lactic acid and does not produce gas. This germ appears as the dominant flora in very young healthy children. . . . In adults on a mixed diet, *bacillus acidophilus* is found in the fæces in very small quantities if at all. The dominant flora is putrefactive.

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[1] Op. cit.

The flora found in the bowel of the average adult living on a mixed diet is largely made up of putrefactive organisms, the *bacillus Welchii*, *bacillus putrificus*, with *bacillus coli* and *streptococci*.

According to Bouchard, the fæces of a meat-eating man or animal are at least twice as toxic as the fæces of a man or animal that does not eat flesh.

The fæces of the lion, tiger, wolf and cat show enormous numbers of pathogenic organisms, while the fæcal matters of the buffalo, goat, camel and elephant were found by Herter to be practically free from virulent organisms.

In a lecture at St. Bartholomew's Hospital in 1908, Dr. Cozens Bailey observed that: "Appendicitis seems to have become more common and fatal of recent years, and this rightly suggests all sorts of questions as to our altered manner of life, our increased luxuriousness, the quality and quantity of our food and drink, etc."

Bailey asserts that "the *bacillus putrificus coli* is present in the colon of animals and contaminates all meats."

Lucas-Championiére, in an analysis concerning 20,000 Roumanian peasant patients, who live chiefly on vegetables, found only one case of appendicitis, whereas the proportion amongst city-dwellers living on a mixed diet was one case in every 221.

In his capacity as Surgeon-General of the French army, Dr. Lucas-Championiére observed that the French soldiers who were fed on canned meat were very liable to appendicitis, whilst this disorder was almost unknown among the Arabs, whose diet consisted of wheat cakes, camels' milk and vegetables.

Senn, of Chicago, noticed that appendicitis was almost unknown among the vegetarian natives of the East African coast.

Dr. McCord, who practised for more than thirty years among the natives of Natal, states that appendicitis is the rarest of maladies among these people by whom meat is rarely eaten.

" Appendicitis is common among the North Americans, and also among the people of England, Switzerland and Germany—all carnivorous," writes Dr. Victor Pauchet. " It is rare in the Italian who lives on cereals."

And he further states, " the most characteristic observation is that made upon children, and I invite your whole attention to this fact. We know that appendicitis is very frequent in children. Very well ; I have never yet seen a case of appendicitis in a child who had never eaten meat."[1]

Dr. Robert H. Perks, F.R.C.S., states, "in the course of many years' experience as chief medical officer of large hospitals, I do not remember an instance of this disease occurring in a non-flesh eater."[2]

Dr. Chalmers Watson has pointed out that in connexion with the increase of appendicitis, the most noticeable change in the diet is the increase in the consumption of animal proteid food. The imported meat has risen from 3 lbs. per head in 1850 to 50 lbs. in 1900. "I think," he remarks, "that we have here the most important factor in the development of the disease."

He requires that meat shall be excluded from the diet in cases of auto-intoxication, and Wegele places first among the list of causes of auto-intoxication, the use of meat.

Meat bacteria are, according to Dr. Kellogg, a cause of appendicitis and colitis.

Colitis owes its origin chiefly to the use of flesh-foods. A diet which encourages intestinal putrefaction will promote colitis. Hence, meats of all sorts must be discarded. All flesh-foods swarm with the bacteria which give rise to colitis.[3]

Kohnstann insists that meat should be

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[1] *La Reforme Alimentaire.*

[2] *Herald of the Golden Age*, Oct., 1902.

[3] *The New Dietetics*, J. H. Kellogg, M.D., page 687.

excluded from the diet of constipated persons.

The free use of meat is said to be among the principal causes of gastritis.[1]

In dysentery, Dr. Kellogg insists that meats of all sorts must be rigidly excluded, as they will only aggravate the disease by promoting the growth of the bacteria to which it is due.

Rettger states that meat or other high-protein diet increases the indol-producing bacteria, and other organisms of the so-called "putrefactive" type.

"The colon of the average man is in the condition of a congested railway system. The right of way is choked, and if bowel movements occur, they are belated—two or three days in arrears; the residue of half-a-dozen or more meals being packed away in the colon undergoing putrefaction and poisoning the body."[2]

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[1] Op. cit.

[2] J. H. Kellogg, op. cit., page 519.

CHAPTER V

THE EFFECTS OF BUTCHERS' MEAT ON THE HEART AND ARTERIAL SYSTEM

IN order to arrive at a conclusion as to the normal rate of heart beat in man, it is desirable to ascertain what constitutes a normal man. In pathological tachycardia (acceleration of the heart's action), the heart-rate is said to reach 200 or even 300 per minute. Dr. G. W. Balfour tells us that he cannot distinguish with any certainty over 150 pulsations a minute. In the newly-born babe a rate of 130 is physiological, but this has dropped by the third year to 100. According to Corvisart, Napoleon's pulse was only 40 per minute.

M. Roux relates the case of an agriculturist who had gone through his military service without difficulty, who never had a complaint either cardiac or cerebral, and who was a typical example of good health, and yet his pulse-rate was never over 34 to 40 per minute, and even a run of several minutes never raised it higher than from 50 to 55, and that only for a few seconds.[1]

It is an interesting question as to how far the effect of a stimulating dietary accelerates the heart's action, and how far, in this sense, the usual rate in meat-eaters should be considered abnormal.

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[1] *Gazette des Hôpitaux*, 1891, page 1072—"Le pouls lent permanent," by le Docteur E. Leflaive.

"The veins and arteries in meat-eaters," writes Dr. H. S. Brewer, "are gorged and dilated, and fever is almost always present."[1]

"As to the arteries themselves," says Dr. Haig, "high tension means a certain amount of strain, and strain is supposed to lead to degeneration of structure."[2]

Dr. Kirk has pointed out that in herbivorous animals there is no irregular action of the heart following the administration of chloroform, but that carnivorous animals are very liable to it.

Sir William Jenner is stated to have remarked that men with a slow pulse and rather low temperature live a long time, and Hüfeland pointed out that intensive life was incompatible with extensive life.

Dr. de Haviland Hall states that although the average duration of life has considerably increased during the last fifty years, *there has been an actual increase in the mortality rate among males between the ages of forty-five and sixty-five*; and that, of the deaths which occur between the ages of fifty-five and sixty-five, one-third of the total are due to disease of the heart and blood-vessels.

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[1] *Alkaloidal Clinica.*

[2] *Uric Acid*, page 182.

It is probable that the normal rate of heart-beat in persons subsisting upon a simple dietary of fruits and vegetable foods, would be nearer 60 than 70 to the minute, and that the rate of 70 or 75 is induced by artificial habits of life. Writing on this subject, Mr. J. H. Oliver states, " the heart of a man who eats meat beats ten times a minute more than that of a man who doesn't. Just try to realize what this means with the flight of time. Imagine your heart beating 600 times an hour more than mine does—14,400 times a day! And yet this is actually the case with many meat-eating friends of mine. Can you wonder that, in the course of a few years this vital organ proves unequal to the unnatural strain, that it becomes prematurely old and breaks down under it."[1]

In an article in the *Nineteenth Century*, Lady Paget estimates an even wider difference between the rate of heart-beat in meat-eaters as compared with non-meat-eaters, the ration being 72 to 58 per minute, and amounting to 20,000 additional heart-beats in 24 hours.

The rest and repair of the heart can only take place between each beat, and it will thus be obvious that an additional 10,000 to 20,000 beats in the course of 24 hours must mean a serious restriction of the period for rest and repair.

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[1] *A Practical Treatise on Diet and Hygiene.*

" Though the average duration of life has increased during the last fifty years," writes Dr. T. Bodley Scott," much of this is due to a lower mortality in infancy and childhood. There has been an actual increase in the mortality rate among males between the ages of fifty-five and sixty-five. One-third of the total deaths in this period are due to diseases of the heart and blood-vessels."[1]

In speaking of high arterial tension, Sir William Broadbent states that " the remote causes are just those which conduce to the imperfect oxidation and elimination of nitrogenous waste. 1—Food. A high proportion of animal food, and especially of butchers' meat, stands first on the list.

" There is no such great difference between fowls of all kinds or game, and red meat, as is popularly supposed, but perhaps meats contain more extractive matters. Soups, beef-tea, and animal juices, meat extracts and the like, however valuable, contain a maximum of potential waste in comparison with matters available for tissue nutrition.

" I have been greatly struck with the frequency and degree of high arterial tension met with in Englishmen returning from India and other hot climates. . . . The explanation apparently is that the Englishman carries his meat-eating habits with him to hot climates, and there being here comparatively little need for combustion in order to maintain the temperature of the body, the nitrogenous food is imperfectly burnt off and eliminated."[1]

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[1] *Why do we Die?* page 20.

The same authority writing on the subject of aneurism, remarks that "soups, game, salt fish, rich sauces, beer and tea should be forbidden, and meat be used in moderation, as extractives, rich foods, and excess of nitrogenous matter may lead to the retention of toxic materials in the blood. In valvular disease of the heart a diet consisting largely of meat is said to cause a serious addition to the work imposed on the heart, through the accumulation of imperfectly oxydized waste in the blood and resistance in the capillary circulation."[2]

Beneke points out that the gradual withering of the capillaries, and consequent diminishing of their area has the effect of increasing the peripheral resistance to the onward flow of blood, raises the blood pressure within the arteries themselves, so that, notwithstanding dilatation of these vessels, the blood pressure increases with age.[3]

Now, "even in young and healthy arteries any increase of the blood pressure over the normal mean produces rigidity of the arterial walls."[1] It would appear, then, that the stimulating effect of butchers' meat upon the circulatory system is a contributory cause to deterioration of the arteries. Dr. Balfour points out that peripheral resistance is greatly increased by any augmentation of the quantity of blood, whether that be caused by plethora or hydræmia, and he declares that over-indulgence in food induces plethora—a most dangerous condition for anyone with a weak heart. "The abuse of stimulants and narcotics is a most fruitful source of senile heart trouble, and when conjoined with gluttony the combination is the most potent source of heart trouble we could have."[2]

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[1] *The Pulse*, page 160.

[2] *Heart Disease.*

[3] *Die Altersdisposition*, Dr. F. W. Beneke, Marburg.

In commenting on the use of medicines, the same writer remarks that "they no doubt have their place and power, but it is attention to the little things of daily life—the little things of eating, drinking, and doing—that influence the patient's comfort, and gradually turn the scale of health in his favour. Herein lies one of the great difficulties in the way of successful treatment, for when the regulations of the physician come to be pitted against the habits of a lifetime, there is sometimes a difficulty in securing acquiescence."[3]

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[1] *The Senile Heart*, G. W. Balfour, M.D., LL.D.

[2] Op. cit., pages 27 and 29.

[3] Op cit., page 217.

In his work on *Diseases of the Arteries*, Sir Clifford Allbutt expresses the opinion that " one of the kinds of arterio-sclerosis is due to excessive, or relatively excessive, feeding with meat and wine, and that this kind is caused by a persistence of high arterial pressures."

" Excess of nitrogenous food is especially injurious to the arterial system in people leading a sedentary life, and suffering from a gouty diathesis. Continuous high pressure in the arteries arises from irritation of the arterio-capillary system by the products of imperfectly oxidized nitrogenous waste; and the increased peripheral resistance leads to compensatory increased force of the heart's action."[1]

Sir B. W. Richardson observed: " I am not far wrong in saying that no butcher can be found in our large towns who, after eight or ten years daily work at the slaughter-house, is free from the effects of rheumatism or heart disease. The mortality of the butcher is as a necessity far above the average."

In dealing with the treatment of arterial degeneration, Dr. Mott remarks that excess of meat, especially of red meat, is to be avoided. . . . Beef-tea, meat extracts, and essences, so frequently employed as

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[1] F. W. Mott, M.D., F.R.S., " Arterial Degenerations and Diseases," in Allbutt's *A System of Medicine*.

"supporting measures," should be sparely used or avoided.[1]

"A so-called strengthening diet is the main factor in arthritism and sclerosis, the two principal causes of decadence in our times. Not only does it bring premature old age on the individual; it visibly brings about the degeneracy of the race."[2]

According to Huchard, arterio-sclerosis "begins by intoxication, continues by intoxication, and ends by intoxication," and he is of opinion that it most commonly originates from the putrefaction in the intestine of undigested remnants of food proteins, especially flesh-meats, and the absorption of the products of putrefaction in quantities greater than the liver is able to destroy or the kidneys to eliminate. "The origin of the disease," he remarks, "is alimentary, the lesion vascular, but the danger is renal. As the disease advances, the kidneys become less and less efficient and the final catastrophe is in a large percentage of cases due to renal failure." Huchard holds that the great frequency with which arterio-sclerosis is encountered in modern times is the result of the increase in flesh-eating, which, in recent years, has been very marked in all civilized countries.

Dr. Huchard began his researches into the etiology of arterio-sclerosis in 1883-1885, and he came to the firm conclusion that the condition of body which leads to this and other diseases is due to auto-intoxication by wrong food, namely the flesh of animals.

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[1] Op. cit.

[2] Dr. A. Monteuis, of the Sanatorium of Sylvabelle.

Dr. Herbert Fox, Director of the Laboratory of Pathology, Philadelphia, noted the fact that arterio-sclerosis is found most definitely developed in animals living upon a meat diet and hence subject to auto-intoxication.

In high blood-pressure a meat diet is contra-indicated. Prof. Dixon of King's College Hospital, has demonstrated the production of pressure-raising poisons in the intestine, and Bain observed the presence of these poisons in the blood and urine of persons of high blood-pressure.

Dale has shown that para-hydroxylphenylethylamine, a poison found in decaying meat, acts like supra-renal extract, and raises the blood pressure at once from 110 to 260. A lower blood-pressure follows the elimination of butchers' meat from the dietary. Dr. M. A. Mortensen recently reported the case of a patient, a man past middle age, whose blood-pressure was reduced from 260 to 160, and still remained at this point after seven years with the disappearance of other symptoms of ill-health.

In referring to diseases of the mitral valve, Dr. Sansom remarks that, " the rheumatic associations of the majority of cases of mitral stenosis constitute a very great, if not the chief, danger," and, in referring to the treatment of this condition, he states, "It may be a little difficult to convince a patient past middle age, whose stomach has been the receptacle of foods of many and various kinds far more than adequate to the needs of his organism, whose nerves of taste have been frequently and abnormally stimulated, and whose absorption of nutritive material and excretion of effete products have been after the manner of periodic and irregular thunder-showers which have deluged the land and blocked the drains, that he must return to the sweet simplicity of the earliest months of his life. Yet it is best so. It is the absence of the irritation to the arteriololes caused by the complex albuminoids which turns the balance towards amendment."[1]

Writing of aortic disease, Sir Clifford Allbutt points out that the diet selected should have a moderating influence on the work of the heart. "We must," he says, "avert indigestion, and administer nutritious food without either raising the arterial resistance or increasing the heart's output. Indistinctly we are aware that there are diets which promote arterial resistance, and so far as our lights go we must elude this danger.

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[1] A. Ernest Sansom, M.D., F.R.C.P., "Diseases of the Mitral Valve." Op. cit., in Allbutt's *System of Medicine*.

Many of the elderly sufferers from aortic disease are gouty. In such persons we should avoid all that encourages this habit."[1]

He refers to the advice of Sir William Roberts in reference to diet in gouty conditions. "Gouty people should be advised to partake cautiously of butchers' meat, fowl, game, and cheese—and to partake as freely as their digestion will permit of bread, rice, garden vegetables, salads and fruit."

Bourgignon states that "arterio-sclerosis, formerly regarded as a 'normal malady' of old persons, is becoming every day more and more precocious. The arterio-sclerotic of forty years of age is no longer a rarity."

It is characteristic of the confusion of thought on the subject of dietetics that Dr. Sidney Coupland, whilst suggesting raw meat or meat juice in the treatment of pernicious anæmia, should admit almost in the same paragraph that "experience proves that nitrogenous foods are ill borne, and the dietary must in the main, therefore, be limited to milk, vegetable and farinaceous foods."[2]

Herter observed that carnivorous animals frequently suffer from pernicious anæmia, and other forms of anæmia, while these diseases very rarely occur in herbivorous animals unless associated with intestinal parasites. If, as seems probable, the condition known as sclerosis is associated with intestinal toxæmia, it is not difficult to understand the improvement in the eyesight that often follows a change from a toxic to a non-toxic dietary. Premature hardening of the crystalline lens may thus have its origin in the same conditions that lead to arteriosclerosis. The author has noted a marked improvement in a case of opacity of the lens, a diet into which oranges entered largely being apparently the curative factor. He has also had his attention directed to a remarkable cure of cyclitis following a treatment directly aimed at intestinal toxæmia.

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[1] "Disease of the Aortic Area of the Heart," op. cit., page 957, Vol. VII.

[2] "Pernicious Anæmia," op. cit., page 586, Vol. V.

Dr. E. Clarke, the well-known oculist, in describing the adjustability and accommodation power of the crystalline lens, points out that, "as age advances, a hardening process, or sclerosis, goes on in the lens as in all the other tissues of the body, and so its elasticity becomes less and less, until a point is reached when the near point of accommodation, which represents the fullest accommodative power, has so far receded that the normal eye requires assistance in the shape of a convex lens in order to see near objects distinctly. This hardening of the lens may be delayed by the absence of, and accelerated by the presence of certain poisons in the system, and intestinal toxæmia takes a very high place in the list.

"One individual has only an accommodative power of 2·5 D, while another has 8·5 D. What is the difference between these two individuals? In the one aged forty, with 2·5 D accommodative power the lens has hardened prematurely and become equal to the lens of a man aged fifty-five. That is, he is suffering from premature senility, and in the great majority of cases, in physical appearance, habits and powers, he is aged fifty-five. There are many causes which help towards this premature senility, but the factor common to a very large majority of them is intestinal stasis. On the other hand, those whose accommodative power is higher than normal look much younger than their years, and are in every way younger, and on going into their history it will be found invariably that they have taken the greatest care to avoid the least suspicion of intestinal stasis."

It would seem evident, in the light of these statements that the use of butchers' meat must exercise an unfavourable influence upon the sight, and this view is borne out by a case of interstitial keratitis reported by Dr. Hugh Blake Williams, of Chicago, and diagnosed as having resulted from intestinal toxæmia. The patient had been suffering with attacks of vomiting and diarrhœa, alternating with constipation prior to the appearance of eye symptoms. Local applications of atropine and dionin gave only temporary relief, but after the patient had been put upon a non-flesh dietary the corneal opacity cleared thoroughly and the ocular inflammation completely subsided.

Dr. Kellogg reports a case of a college professor, aged fifty, wearing glasses adapted to a presbyopic person of that age. After adopting a non-toxic regimen he found his eyes improve so much in a few months, that his range of accommodation was that of a normal person of thirty-five years.

Another case was that of a physician, sixty years of age, having adopted a non-toxic regimen, found after a time that his glasses were uncomfortable, and on consulting an oculist was told that although they had been fitted to his requirements some years ago, they were now ten years too old for him. A change was made to " younger " glasses, and he was still wearing them at the age of seventy, though they were adapted to a person of forty-seven.

The effect of quinine and other drugs upon the sense of hearing is well known, and there is every reason for believing that toxic substances generated within the body may irritate the nerve and other tissues of the ear, nose and throat. Dr. Stuckey, of Lexington, Kentucky, writing in the *Medical Review of*

Reviews (July, 1909), supports this view. In several hundred cases of diseases of the accessory sinuses, and diseases of the middle and internal ear, Dr. Stuckey found that all afforded marked evidences of intestinal toxæmia. Examination of the urine showed quantities of indican and other poisons formed in the intestine in every case. It was found that by treating the patient with suitable measures to combat intestinal toxæmia, great relief was obtained.

CHAPTER VI

THE EFFECTS OF BUTCHERS' MEAT ON THE LIVER AND KIDNEYS.

BRUCE and Dilling[1] state that the substances which enter the liver through the portal vein consist of the products of digestion in the widest sense, namely, the amino-acid constituents of proteins, glucose, salts, a trace of fat and abundant water. They will obviously be poured into the liver very abundantly during digestion. At the same time there enters the liver through the hepatic artery a limited supply of oxygenated blood. In the presence of this double supply, and in proportion to it, the hepatic cells display their special activity; they form creatine, urea (and certain other non-nitrogenous residues), bile and glycogen; and in this process they *diminish the toxicity of the products of protein putrefaction*, besides acting as a trap or resistant filter for alkalis and organic salts. The urea and bile are carried off as such, the former by the hepatic veins to escape by the kidneys, the latter by the bile-ducts, the peristalsis of which and of the gall-bladder, evoked by the presence of chyme in the duodenum, conveys it into the bowel. The *non-nitrogenous* residues of protein assimilation pass onward into the blood for metabolic use.

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[1] *Materia Medica and Therapeutics.*

The same authorities point out that the amount of urea, the secretion of bile, the proportion of store glycogen in the liver, may be modified directly, within certain limits, by the amount of food allowed; and the bile, urea and glycogen may be made to vary with the relative proportion of nitrogenous and amylaceous constituents in the diet.

In the bodily organs, as in the practical arts, rate of manufacture cannot be maintained unless the products be removed. An accumulation of urea, of bile or of glycogen in the system interferes with the hepatic processes. It is also stated that the common causes of derangement of the liver are to be found in the materials supplied to it, and butchers' meat and alcoholic drinks are referred to as articles which have caused gastric and duodenal catarrh, in addition to derangement of the liver. The diet recommended is "moderate or even spare, in form and kind such as to ensure perfect digestion and intestinal activity."

In the case of the kidneys, it is to be borne in mind that the series of vital processes which commences with the admission of food, air and medicines, ends chiefly with the excretion of urine. Digestion, assimilation, metabolism, circulation and respiration, all, therefore, affect the activity of the kidneys. This result is chiefly due to the fact that the kidneys do not themselves form the urea, uric acid, pigments, salts and water which constitute the bulk of the urine; they separate these from the blood, and thus maintain the constant composition of the blood. The kidneys make their influence felt backwards upon the other organs. Disturbance of the renal functions soon tells upon the blood and viscera. The retention in the system of waste products checks functional activity, just as ashes choke a fire.

According to Boix the toxins formed as the result of putrefactive processes in the intestine are the chief cause of hepatic fibrosis.

Bright's disease, rheumatism, cancer, gastric ulcer, skin disorders, neurasthenia, insomnia, and a long list of chronic disorders directly or indirectly due to intestinal toxæmia, are among the evil results of a high protein diet.

"The quantity of food; *its richness in proteins, carbo-hydrates and salts of different kinds;* the relative amount of work thrown on gastric or acid, and on duodenal or alkaline digestion," are mentioned as important factors in affecting the renal functions.[1]

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[1] Dr. J. H. Kellogg.

Drs. Bruce and Dilling refer to excessive alkalinity or acidity, which, with other disorders, may be traced to dyspepsia, constipation, hepatic derangement, etc. "Excessive acidity is chiefly met with in the subjects of disorders of assimilation and metabolism from indulgence in proteid food, and of gout." The uric-acid-diathesis and gout are probably due in the first instance to errors of diet (excess of purins); or, owing to some modification in the enzyme actions, there may be increased formation of uric acid from the body-purins, and a lessened proportion of it may be destroyed, so that more uric acid passes into the blood, either to be deposited in the tissues as urates, causing gout, or to be excreted in the urine, giving rise to gravel. But even if the increased formation of body-purins be at the root of the trouble, the ingestion of purin-producing foods must aggravate the condition.

"The uric acid excreted in the urea," remarks Sir J. Rose Bradford, "has a double origin, part being derived from the alloxur-bases in the food, and part from the metabolism of the tissues. Milk, eggs, rice, white bread, potatoes, salad and cauliflower contain no alloxur bases, and with a diet constructed from these substances, the uric acid secretion will be greatly diminished."[1]

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[1] *Quain's Dictionary of Medicine.*

In a paper on "Direct Introduction of Uric Acid into the Body, its Bearing on the Prevention and Treatment of Disease," Dr. A. Haig shows how easily a man may introduce nearly two grains of uric acid with an ordinary dinner, and he declares his opinion that with a carnivorous, or largely flesh, dinner, the introduction of from four to five grains is by no means extraordinary. A dinner of this kind will act as a *stimulant*, and those who take it will *feel* better, and stronger, and happier for it, and nothing will persuade them they are doing themselves any harm by taking it. Unfortunately, however, in the natural course of events, as old age comes on, nutrition begins to fail, and further stimulation becomes more and more difficult, then alcohol, morphine, and cocaine are, perhaps, called in one after another to help to keep the fires going brightly; at first they succeed; later, like everything else, and even in large doses, they fail, and then comes the final disaster. (See also Sylvester Graham, Chapter I).

Long before the final stage—chronic Bright's disease and uræmia, or heart failure—it will be "quite obvious to onlookers that the meat-eater has got far the worst of the argument, and will presently have to pay a terrible price."[1]

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[1] Uric Acid.

Dr. Hall, of Manchester, who made a study of food substances in relation to their uric acid content, found that flesh-foods contain a large proportion of this injurious product :—

URIC ACID IN FOODS (HALL).

Food.	Grains per pound.
Sweetbread	70·40
Steak	14·45
Liver	19·26
Oatmeal	3·45
Peameal	2·54
Potatoes	·14

Dr. Haig demonstrated the error that Sir A. Garrod had fallen into with respect to Lehmann's table as to the uric acid urea relation on a mixed diet as compared to a meatless diet. Haig states that the *first* effect of animal diet, as of uric acid itself, is to diminish the excretion of uric acid because it raises the acidity of the urine and diminishes the alkalinity of the blood.

Folin has shown that urea represents the excess of protein which has been eaten, the only use for protein being to make good the wear and tear of the living tissues. Any amount beyond the small quantity required to accomplish this, instead of being built into tissue, is directly carried out of the body as so much waste matter. It will thus be readily seen how great a burden is imposed upon the kidneys by the extra work required of them in the elimination of surplus protein eaten in the form of steaks and chops.

The tendency of tuberculous patients to renal disease (86 per cent.) is a most weighty reason for lessening intestinal toxins by withholding meats. Some years ago an institution was started in Germany which undertook to feed the tuberculosis patient on an exclusively flesh diet, and in this instance the diet was not only wholly made up of meat but of raw meat. It is hardly necessary to add that the enterprise was a complete failure, in fact collapsed within six months of the opening.

In the treatment of granular kidney, Sir J. Rose Bradford recommends that patients should be especially warned against eating large quantities of meat and highly seasoned foods. He also remarks that a milk diet is indicated in all cases of chronic Bright's disease presenting uræmic symptoms."[1]

In the treatment of renal disorders, Dr. W. Howship Dickinson observes, "we must enforce such diet as to reduce to a minimum that nitrogenous excess which finds its way out chiefly by the kidneys, and provides in many shapes effective means of irritation."[2]

Dr. J. H. Kellogg made a careful study of the urine of 24 men and 22 women, all young healthy subjects, living upon a meatless diet, with a low protein ratio (Chittenden standard). In the accompanying table the results are compared with the urine of persons living upon an ordinary mixed diet :—

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[1] Quain's *Dictionary of Medicine.*

[2] *Treatise on Albuminuria*, page 86.

	Ordinary or High Protein Diet (Folin). Gms.	Low Protein Diet without Butchers' Meat. Gms.	Excess. Per cent.
Amount Of Urine, c.c. ...	1·430	1·000	43
Total Nitrogen	16·00	6·440	148
Urea	29·80	11·650	155
Uria Acid	·370	·373	
Uric Acid	·370	·323	14
Ammonia in terms of NH3...	·850	·247	244
Chloride	10·050	6·455	56
Creatinin	1·550	·815	90
Phosphates	3·870	1·455	166
Total Sulphates	3·140	1·071	192
Indican	77·000	5·600	1,275

In commenting upon this table, Dr. Kellogg remarks upon the enormous amount of extra work imposed upon the kidneys by the ordinary diet. The total quantity of the urine eliminated, he points out, is forty-three per cent. more than upon a meatless diet. The acidity is more than double. The total nitrogenous waste is represented by nearly 150 per cent. more nitrogen, and the urea is increased to a similar degree. The ammonia, *arising from putrefaction in* *the colon*, is increased to nearly three and a half times the normal. Creatinin, *derived in a large measure from the meat eaten, is almost doubled*, the excess of which, the indican, the direct product of putrefaction in the colon, is increased nearly thirteen hundred per cent!

As Dr. Kellogg observes, these facts demonstrate conclusively that the ordinary mixed diet, which, owing to its proportion of butchers' meat, provides an excess of protein, compels the kidneys to do an enormous amount of extra and harmful work in order that the excessive amount of toxic material thrown into the blood may be removed. The total work done is considerably more than double the normal amount required from the kidneys, and it is scarcely to be wondered at, if, under such additional strain, the kidneys should break down. The great prevalence of renal degeneration amongst flesh-eating people corroborates this.

Prof. E. J. Janeway directed Dr. Kellogg's attention to the fact that the domestic cat, fed largely on meat, was usually found to have its kidneys in an advanced stage of degeneration; and the former points out that, with a flesh diet, enormous quantities of uric acid may be thrown into the circulation, and a very heavy burden imposed upon the kidneys.

The mortality from all causes in *butchers* in 1900-1902 compared with all occupied males was as 115 to 100, and from alcoholism and diseases of the liver as 219 to 100.

In his Report for 1871-1880 the Registrar-General stated : " Butchers have now, and had in the previous record, a very high death-rate, 1,170 compared with 1,000. Their mortality from alcoholism, liver disease and urinary diseases is almost identically the same as that of brewers."

A high protein diet, or even the ordinary mixed diet, which, by including meat, comprises an excess of protein, compels the kidneys to do an enormous amount of extra and harmful work in order to remove the blood, the excessive amount of poisonous wastes thrown into it. The total work done is considerably more than double the total work normally required of the kidneys. . . . The great prevalence of degeneration of the kidneys among flesh-eating people and flesh-eating animals are facts which bear eloquent testimony on this point.

" A diet consisting too much of animal food," writes Sir J. Risdon Bennett, M.D., " in persons of certain constitutional tendencies, is often productive of great mischief by over-stimulating those organs which are called to relieve the system of effete matter. What is called the more sustaining effect of a meat diet, the greater feeling of satisfaction that it occasions, is probably due to the more speedy conversion into nutriment and appeasing of the sense of hunger. The evils arising from excess of animal food are most marked in persons leading a sedentary and luxurious life."[1]

Dr. Tibbles states that "the persistent consumption of foods containing a large percentage of purin bodies is apt to lead to their accumulation in the organism. So long as the liver can transform and the kidneys excrete purin bodies, no harm, it may be thought, will follow. But a constant irritation of the kidneys by an excess of purins, especially uric acid, may result in chronic nephritis of the gouty variety, with other evidences of chronic gout. The retention of purins (uric acid) in the system is amongst the recognised causes of gout, rheumatic gout, uric acid gravel, uric acidæmia, migraine, neuralgia, sciatica, epilepsy, vascular diseases, and many other conditions of ill-health."

"It is the theory of many physicians," writes Dr. von Noorden, "that nephritic patients should be given a diet poor in proteins. It is said that such a diet puts less strain on the diseased organs. No doubt this is true for acute nephritis and for the acute relapses of chronic nephritis. . . . For two years I have been of the opinion that for acute and dangerous cases *no nitrogen should be given in the food.* I have given nothing but sugar water and fruit juice for from three to eight days at a stretch (often 200 to 300 grams of sugar daily). It was my impression that this form of treatment was very useful, and that uremic symptoms were obviated, or, if already present, were removed."

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[1] *Food and its Use in Health.*

"Excess of nitrogenous food causes not only an abnormal production of the poisonous alkaloids, but an excess of nitrogenous waste. . . . . The liver, kidneys, and other excretory organs are overtaxed, and gout, or kidney and liver disease results."[1]

"A great many diseases such as gout, rheumatism, diseases of the kidneys, etc., are produced by eating inordinate quantities of meat," states Dr. Farquharson.

Dr. Vaughan, of the University of Michigan, holds that in Bright's disease the blood-stream carries to the kidneys toxins which give rise to degenerative changes. To suppress these toxins he forbids all flesh food, and prescribes a diet consisting largely of potatoes, green vegetables, fresh fruits, cream and butter, and cereals in moderation. After a few weeks patients lose all desire for meat and eggs. Dr. Vaughan affirms that even a hard working man can easily live on a diet from which both eggs and meat are excluded.

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[1] *Manual of Hygiene*, Parkes & Kenwood.

In a paper on the treatment of Bright's disease in the *Bulletin General de Therapeutique*, Dr. Sapelier (of Nanterre) prohibits the use of bouillon and all juices and extracts of meat, remarking of the former that it is a " veritable solution of ptomaines."

" Meat and condiments," writes Dr. Kellogg, " tend to increase the irritation of the prostate."

CHAPTER VII

THE EFFECTS OF BUTCHERS' MEAT ON THE BRAIN AND NERVOUS SYSTEM

IT is somewhat remarkable that more attention has not been devoted to a study of the effects of butchers' meat upon the brain and nervous system.

It is doubtful whether the indirect evils attending the use of butchers' meat—of which alcoholism is one—are not as great as those attributed by the advocates of total abstinence to alcoholic beverages. Sir Henry Thompson himself admits that he had been "compelled by facts which are constantly coming before me, to accept the conclusion that as much mischief in the form of actual disease, of impaired vigour, and of shortened life, accrues to civilized man, so far as I have observed in our own country and throughout almost every part of Europe, from erroneous habits of eating as from the habitual abuse of alcoholic drink, considerable as I know the evil of that to be."[1]

Indeed, the agitation against the use of alcoholic drinks would seem to have been exploited effectively by the manufacturers of

[1] See page 2.

meat extracts, and other preparations of more than doubtful origin.

The "Ox in a Tea-cup" superstition has been effectively ridiculed by Prof. Halliburton, of King's College Hospital, who writes: "Instead of an ox in a tea-cup, the ox's urine in a tea-cup would be much nearer the fact, for the meat extracts consists largely of products on the way to urea, which more nearly resemble in constitution the urine than they do the flesh of the ox."

The meat-eater, or consumer of the much-vaunted meat essences, takes into his system toxic products that are not less injurious than alcohol, and the toxic effects of which, can scarcely fail to act injuriously upon the nervous system.

Referring to nervous depression, Lauder Brunton remarks: "I think it is a question whether beef-tea may not very frequently be actually injurious, and whether the products of muscular waste, which constitute the chief portion of beef-tea, beef-essence, or even the beef itself, may not, under certain circumstances, be actually poisonous.

"In many cases of nervous depression," he continues, "we find a feeling of weakness and prostration coming on during digestion, and becoming so very marked about the second hour after a meal has been taken, and at the very time when absorption is going on, that we can hardly do otherwise than ascribe it to actual poisoning by digestive products absorbed into the circulation. From the observation of a number of cases I came to the conclusion that the langour and faintness of which many patients complained, and which occurred about eleven and four o'clock, was due to actual poisoning by the products of digestion of breakfast and lunch ; but at the time when I arrived at the conclusion I had no experimental data to show that the products of digestion were actually poisonous in themselves, and only within the last few months have I seen the conclusions to which I had arrived by clinical observation confirmed by experiments made in the laboratory."[1]

In view of the opinions held by medical authorities as to the toxæmic influence of a meat diet, it is important to note that tissues, nervous and non-nervous, betray a special affinity for various chemical compounds, toxic or otherwise. Dr. W. Bevan Lewis points out that numerous bacterial products exhibit a selective operation in their mode of attack, and he instances the toxins of tetanus and hydrophobia which exhaust themselves upon the ganglionic cells of the central nervous system, whilst the diphtheria toxin sets up a parenchymatous degeneration of peripheral nerves, sensory and motor, followed by muscular degeneration.[1]

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[1] "Indigestion as a Cause of Nervous Depression," *The Practitioner.*

It seems possible that the toxic elements introduced into the system by the ingestion of flesh-food, may not be without their influence as causative factors in lesions of the nervous system.

A medical writer in the *Boston Medical and Surgical Journal* remarks: "I have become convinced that children fed largely on meat have a capricious appetite, and suffer from indigestion, constipation, and diarrhœa; are subject to catarrhs of the mucous membranes, and have an unstable nervous system, and less resistive power in general."[2]

Dr. Cammann relates that in a large institution in New York, meat had been omitted from the dietary of children under eight years of age with good results.[3]

According to Dr. E. F. Blandford, among the physical causes of insanity are "toxins derived from without, or generated from within the body. Such toxins as those of rheumatism or gout are easily recognisable, and the relationship between them and insanity is unquestionable."[4]

Sir T. Lauder Brunton observes that

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[1] Allbutt's *System of Medicine*, Article on "General Pathology of the Nervous System," Vol. VI.

[2] Quoted by the Hon. Rollo Russell.

[3] "Milk Diet in Childhood," *Veg. Messenger*, Oct., 1889.

[4] Quain's *Dictionary of Medicine*.

"when the brain is overworked, and the respiratory and muscular movements are restricted, the cerebral nutrition will be diminished by the imperfect removal of waste from its substance. But if, in addition to this, the cerebral cells and fibres are actually poisoned by the circulation within the vessels which supply them, of noxious substances due to imperfect digestion or assimilation, matters will become very much worse."[1]

M. Lepine, of Paris, maintains that neurasthenia is usually a result of auto-intoxication. Intestinal putrefactions are, in his opinion, the source of the toxins. He has found that the symptoms of exhaustion and neurasthenia disappear quickly when the eliminative organs are made active, and especially when the patient is placed on a non-toxic dietary, such as the lacto-vegetarian regimen.

Sir Herman Weber, in his *Prolongation of Life*, remarks: "Many years ago I observed on myself that the reduction of the amount of food, especially meat and other flesh-food, to half the quantity I had been in the habit of taking, enabled me to do a larger amount of work without the feeling of mental fatigue and exhaustion, and craving for tea and coffee one or two hours after a meat lunch."

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[1] *The Practitioner.*

According to Dr. Church Paterson, it is established that auto-intoxication from the absorption of poisonous substances generated in the alimentary canal by putrefaction and fermentative processes is not only a real thing but a frequent factor in the etiology of a number of nervous disorders, and even of graver maladies like epilepsy, melancholia and mania. Simplicity should be the rule as regards food.[1]

"My experience is," writes Dr. F. S. Clouston, "that children who have the most neurotic temperaments and diatheses, and who show the greatest tendencies to instability of brain, are, as a rule, flesh-eaters, having a craving for animal food too often and in too great quantities. I have found, also, that a large portion of the adolescent insane had been flesh-eaters, consuming and having a craving for much animal food. I have seen a change of diet to milk, fish, and farinaceous food produce marked improvement in regard to the nervous irritability of such children. I most thoroughly agree with Dr. Keith, who, in Edinburgh, for many years, has preached an anti-flesh crusade in the bringing up of all children up to eight or ten years of age."

"*Abstinence from meat,*" writes the Hon. and Rev. Canon Lyttelton, "*is found to give elasticity to the spirit.* Not at first, especially if the change be made abruptly. Scores of people, I imagine, have been deterred by finding that the first effect is languor and depression. This is because meat is a stimulant, and ceasing to eat it is like leaving off wine and tobacco."[1]

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[1] *Nervous and Mental Diseases.*

In an article on epilepsy, Sir William Gowers, M.D., F.R.C.P., F.R.S., expresses the opinion that, although, on theoretical grounds, it has been recommended that meat should not be taken by epileptics, its use may be allowed with advantage. But he has met with more than one patient who could not take beef without having an attack, and many patients find it wise to abstain from beef.[2]

The increase of insanity is a sinister sign, and its cause is deserving of careful and unbiassed investigation by all who have the nation's welfare at heart. Dr. Rentaul, writing on the subject of "Sterilization," draws attention to the fact that "one out of every 250 of the population in England is officially described as a lunatic ! One out of every five criminals is a lunatic ! Two out of every three in inebriate homes are feeble-minded !"

"These figures," he remarks, "are but a finger-post pointing thoughtful minds to a ghastly future. The medical inspection—

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[1] *Fortnightly Review*, March, 1918.

[2] Allbutt's *System of Medicine*.

not trained nurse inspection—of school children is bringing a sad state of affairs to the surface. The mentally defective children (about 150,000 in England) will beget an army of insane."[1]

In a paper on "General Paralysis of the Insane," read before the Harveian Society, Dr. Savage expressly stated that "this disease was more commonly found among those who eat heartily of animal food."[2]

"Every carnivorous animal," declares Dr. Forbes Winslow, "is a born criminal by instinct, every bird, like the eagle and vulture, who lives upon meat, can be classed in the same category. It is a well-recognised fact that those invalids who are sustained on raw meat, which is the case with some, soon become very bad tempered—in fact, often lose all power of control over themselves."

"Meat, no doubt, stimulates the animal passions, and often converts the human being into a brute, and excessive indulgence in the same is often the cause of serious crime."[3]

Mrs. Ernest Hart remarks, "One deplorable result of excessive meat-eating in England is the ill-temper which is a chronic complaint amongst us. In no country probably is home rendered so unhappy, and life made so miserable by the ill-temper of those who are obliged to live together as in England."

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[1] In the *Canadian Practitioner*.

[2] *The Lancet*, April 5, 1890.

[3] *Evening News* (London), Oct. 20, 1909.

"If we compare the domestic life in England with that of other countries where meat does not form such an integral part of the diet, a notable improvement will be marked."

Dr. Kraft-Ebing speaks of the "predominating nervous condition of later generations, which begets defective individuals, excites the sexual instinct, leads to sexual abuse, and with continuance of lasciviousness associated with diminished sexual power induces perverse sexual acts."[1]

"Parents mourn over many ill effects of unrestained passions and moral deterioration of the rising generation," writes Dr. Calvin Cutter, "while, in truth, they are too often but the legitimate harvest of the seed they have themselves sown in the form of stimulating foods and drinks."

The drink crave itself, and, most certainly, the inability to resist over-indulgence in alcoholic stimulants, would appear to be traceable to the use of a stimulating dietary. Dr. James C. Jackson, who devoted close attention to this subject, declares: "Physicians themselves make one great mistake in treating diseases of the nervous system. They administer stimulants and tonics, in the vain hope to elaborate out of the reserved energy fresh supplies; when the truth is, there are no supplies left; and, where there are none in a man, stimulants, tonics and nervines of every kind are contra-indicated, and if they are persistently administered, the patient dies." "Give your child," he says, "the fattened flesh of animals, the salt, pepper and spices which are used in the preparation of flesh for food, and which always irritate the mucous surfaces of the stomach and bowels; give him stimulo-narcotic drinks, such as tea and coffee, with light beer and wine upon occasions, and through the heated condition of the blood made out of such food, your boy has begun to be a drunkard."

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[1] *Psycopathia Sexualis*, pages 498-499.

"I have long been convinced," writes Dr. George Keith, "that there is a casual connexion between a free use of flesh-foods and an inclination for stimulants, especially in the young. Roast beef is, perhaps, the most sapid food that exists. Desire gratified leads to the demand for something higher in the same line. This cannot be had from food, but it may from drink."[1]

Dr. H. B. Fowler expresses the opinion that "the more flesh-food is used the more serious is the danger of confirmed alcoholism," and Dr. C. E. Macnamara states that meat should be avoided by the man who would utilize his will to conquer his drink crave.

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[1] *Fads of an Old Physician*, page 42.

"For the past five years (1903-1908)," writes Mrs. Bramwell Booth, "no flesh-food has been used in the dietary of our Inebriate Homes, and all will agree it is very difficult to help these women who have been for ten, fifteen, or twenty years, victims of alcohol, and taking all kinds of drugs—their physical recovery has been very much quickened and much more permanent, since we have abolished meat from the diet. The percentage of good results has been higher than we have realised before."

Miss Helen Hudson had charge for many years of the Salvation Army's Homes for Women Inebriates. She was induced by Mrs. Booth, against her own judgment to eliminate flesh-foods from the dietary. "One of the first results noticeable was the early change in the attitude of the patients. When flesh was provided, the patients who came were ill for months after their admission, retaining their objectionable tempers and peculiar weaknesses; but after the non-flesh introduction all was altered. The sharp, cross women became kind and quiet and gentle, and were able to be in the work-room in two or three weeks."

"Lazy, vicious, bloated, gluttonous, bad-tempered women, heavy with years of soaking; whose bodies exhaled impurities of every description, who had hitherto needed weeks, and even months, of nursing and watching, to my astonishment and delight, under this new treatment made rapid recovery, assuming a fairly normal condition in about ten days or a fortnight."

"I consider," declares Miss Hudson, "those who are trying to help the drink victim are defeating their own ends unless they will see and act on the principles of the reformed diet."

Sir Benjamin W. Richardson stated at a public meeting held in London, that he had not met with a single instance of an abstainer from butchers' meat being addicted to strong drink.

CHAPTER VIII

BUTCHERS' MEAT AND THE INCREASE OF CANCER

THERE are two outstanding facts in connexion with cancer, viz., its increase amongst meat-eating nations, and its partiality for attacking (so-called) "well-nourished" persons. There is the further fact, on the testimony of Dr. Bland Sutton, "that it is clearly established by a careful study of the death returns, that in more than half the cases in which death is attributed to cancer the primary seat of the disease is in the digestive organs."[1]

The investigations under the Cancer Research Fund led to the inference that it does appear as if the irritating stimulus which produced the result might be of the nature of a chemical agency in the blood; and further that the birth of cancer consists of some kind of irritating stimulus to the ordinary cells.

The fact has often been noted that the malignant tissue is really a proliferation of the ordinary cells, and this is compatible with the idea of an irritating stimulus as above referred to. In a discussion at the Royal Society of Medicine, Dr. Alexander

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[1] *Tumours* (Cassell & Co.).

Haig mentioned the investigations of Mr. H. C. Ross and Dr. J. W. Cropper which establish the fact that several substances closely related to uric acid, and which are certainly present in the body, as forerunners of uric acid, caused cell proliferation. They have called these substances "auxetics," and their work has been confirmed by others, especially in the production of malignant disease by gas-tar. According to these investigators there is required, for the production of a malignant disease, an "auxetic" such as xanthin, which is present in the blood in gout, and an "augmentor" such as cholin or cadaverin, formed from the decomposing products of tissue destruction. Thus when gouty inflammation produces tissue destruction in a part of the body (uterus, larynx, etc.), which cannot be kept clean, all the conditions exist for the production of a malignant growth.

Dr. Haig further states that there is no practical doubt that the diet which prevents gout also prevents malignant disease. The introduction of uric acid must be stopped, and conditions must be made as favourable as possible for the removal of any that exists. The nut and fruit diet, he points out, fulfils both these conditions, and, as a stepping stone towards it, a milk, rice and curd diet may be prescribed.[1]

[1] *Proceedings of the Royal Society of Medicine*, 1913, Vol. VI.

Dr. Haig further quotes a case supplied by Dr. Charles Gayford, upon which the latter commented : "At the time this case greatly impressed me. It seemed impossible to discount the conclusion it thrust home, viz., that surely there must be in some cases a close relationship existing between a gouty condition and incipient cancer."[1]

Reference has already been made to the toxins which an excess of proteid produces in the system (see page 68), and the presence of which cannot be other than deleterious to health, and it has also been shown that the free use of butchers' meat increases the frequency of the heart's action, and raises the blood pressure (see page 54).

Dr. Haig refers to the rarity of cancer amongst vegetarians,[2] and the experience of the physician to the monastery of Grande Trappe is remarkable. He met with no case during twenty-seven years, of apoplexy, aneurism, gout, epidemic disease, or cancer. The monks partook of three meals a day, and their food consisted of black bread, vegetable soup, greens, cheese, fruit, water, and a little beer.[3]

According to Williams, cancer is almost unknown among the poorly fed Hebrews of East London, but is very common among the wealthy Jewish bankers of Hyde Park.

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[1] Ibid.

[2] *British Medical Journal*, 1888, Vol. II., page 29, and *Lancet*, 1888, Vol. II., page 552.

[3] Quoted by the Hon. Rollo Russell.

"Several years ago," writes Dr. George S. Keith, "I read in the *British Medical Journal*, a debate on cancer in one of the London Medical Societies. Two or three of the surgeons who took part spoke of starvation as the only remedy for the disease. This interested me much, as I had not noticed similar views in any medical literature with which I was acquainted. I had long known, however, that high living, that is, the use of wine and other stimulants, and of strong animal food, aggravated in an extraordinary manner all the symptoms arising from this terrible disease; while abstinence from these, and the use of a light and sparing diet, if it could not cure, certainly relieved in a high degree the pain and irritability of the patient; rendered the course of the local disease slower and prolonged life, while it made it much more tolerable to the very end. *I know of no class of cases where the benefit that follows a change of living is so marked, and I am not sure that I know of any in which the change is so difficult to make whether the sufferer be rich or poor.* In the one case the relatives, from the kindest of motives, take every care that the doomed one shall want nothing that money can supply, and in the other, kind friends and neighbours have a similar care for the poorer sufferer; while most surgeons, thinking of the exhausting nature of the malady, recommend all sorts of what are usually considered the richest and most setting up meats and drinks; and trust to opiates and other drugs to relieve the pain and suffering. My own experience has led me to adopt a very different treatment to that which is certainly still followed as a rule, both as to feeding and giving soothing medicines, and I have found that if a proper diet is given, there is little call for relief by opiates, and sometimes none at all."

"Some twenty years ago I read, I think, in the same medical journal a short notice of a woman who had suffered for some years from cancer in the breast. At last her condition got so low and her digestion so bad that she could only take for sustenance a very small quantity of milk. On this alone she lived for two years, and at the end of that period the cancerous growth had quite disappeared."

Dr. Keith relates a case of a Mrs. M———, a lady about 40, of a very nervous, irritable temperament, who was constantly suffering from mucous irritation to a degree he had rarely met with, and had also a moderately-sized uterine fibroid. She had been "kept up" with the best of everything—though from the state of her stomach she could take but little—but with no good result, and she remained wretchedly thin and unable to be out of doors. A change of diet, and an almost complete cessation from drugs rendered her life on the whole a much more tolerable one, and of this she was so well convinced that when Dr. Keith had induced her to place herself in the hands of a local doctor, he had, at her urgent request, to renew his attendance upon her. Under the strict regimen prescribed by Dr. Keith her health improved, and she grew a little stouter.

Thirty years later she again consulted Dr. Keith, and complained of trouble with one of her breasts, in which, on examination, he found a well-marked knot of schirrus. She stated that she had been told the same forty years previous, and that, at that time, Dr. Kellie, a well-known Leith physician, urged that the tumour should be removed, a view in which he was supported by two other surgeons. During the last few years of her life, the breast gave her considerable trouble, but she lived to upwards of eighty, and finally died from a general break-up.

A medical friend with whom Dr. Keith discussed this subject of high living as a possible cause of the schirrus form of malignant disease, remarked that he was the distributor of a fund for poor women suffering from advanced cancer, and he did not think that such a view could apply to them. At Dr. Keith's suggestion, however, he made enquiries into each case, and after six months, he agreed that Dr. Keith was right. As a general rule, his poor clients had been well fed, and were well fed still, and one result of his inducing them to modify their diet was that they lived for a longer period, the average life having previously been one year from the date of admission to the benefits of the fund.

" In butchers' meat," writes Dr. George Black, " we have a substance that may itself be diseased, that is highly fermentative, that always acts as a stimulant and irritant, giving rise to or keeping up inflammatory processes in the system, so that to continue its use in a case of cancer is but to add fuel to the fire, to load the blood further with impurities, and to cause much unnecessary suffering."

Dr. J. H. Kellogg relates a case of cancer of the neck of four years' growth. The patient left off eating meat and soon began to recover. After a time the cancer was reduced to a small growth, and it finally disappeared and healed up. " There is now only a small white scar on the neck where the cancer was, and during the two years that have elapsed since, the man has been perfectly well. I sent a specimen of this cancer to an eminent Professor of Pathology in the Cornell University, and, after an examination, he pronounced it a case of cancer in its most deadly form."[1]

The association of the use of butchers' meat with the causation of cancer is by no means new. In a letter written March 20, 1837, Dr. William Lambe instanced a case of a woman, aged 49, who consulted him with reference to what he believed to be cancer of the breast. In a very short time —less than three months—"by vegetable food and distilled water, the pain is completely assuaged, the tumour resolved, all but a little nucleus difficult to be felt or distinguished, and the general health on the whole sensibly amended." Dr. Lambe refers to another case of (uterine) cancer, which was treated at a public institution. "Now, the fact is, that this woman is alive at this moment, that is to say at the end of a quarter of a century from the attack of this severe and usually fatal disease. Slight pain and discharge she still suffers, and her health has been always feeble, but she cannot be said to have passed life without enjoyment."

Whilst at the Aldersgate Street Dispensary Dr. Lambe became acquainted with Mr. Abernethy, the famous surgeon, who was writing at that time his "Observations on Tumours." He handed over to Dr. Lambe one of his cancer patients to be treated with a vegetable diet and distilled water, and based the following observations thereon: "Very recently, Dr. Lambe has proposed a method of treating cancerous diseases which is wholly dietetic. He recommends the adoption of a strict vegetable regimen, to avoid the use of fermented liquors, and to substitute water purified by distillation, in the place of common water used as a beverage, and in all articles of diet in which common water is used, as tea, soups, etc. . . . . My own experience on the effects of this regimen is, of course, very limited. Nor does it authorize me to speak decidedly on the subject. But I think it right to observe that in one case of cancerous ulceration in which it was used the symptoms of the disease were in my opinion rendered more mild, the erysipelatous inflammation surrounding the ulcer was removed, and the life of the patient was, in my judgment, considerably prolonged."

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[1] *Herald of the Golden Age*, April, 1913.

"It seems to me very proper and desirable that the powers of the regimen recommended by Dr. Lambe should be fairly tried for the following reasons:—

"1st.—Because I know some persons who, whilst confined to such diet, have enjoyed very good health, and I have further known several persons who did try the effects of such a regimen, declare that it was productive of considerable benefit. They were not indeed affected with cancer; but they were induced to adopt a change of diet to allay a state of nervous irritation, and correct disorder of the digestive organs, upon which medicine had but little influence."

"2nd.—Because it appears certain that, in general, the body can be perfectly nourished by vegetables."

"3rd.—It seems sufficiently ascertained that diseases have, in some persons, been excited by water, and therefore it is desirable that whatever is used should be as pure as possible."

"4th—Because all great changes of the constitution are more likely to be affected by alterations of diet and modes of life than by medicine."

"5th—Because it holds out a source of hope and consolation to the patient in a disease in which medicine is known to be unavailing, and surgery affords no more than a temporary relief."[1]

The imports of butchers' meat per head in the United Kingdom were, in 1857, 5·95 lbs., whilst in 1913 they had increased to 30 lbs. The cancer rate in England has risen (for all ages) from 4·2 in 1871 to 8·3 in 1900; in Scotland, from 4·4 to 8·6; in Ireland, from 4·2 to 8·3 in the same period.

In Chicago, the largest slaughtering centre in the world, where every facility exists for an increasing consumption of butchers' meat, the cases of cancer have increased 812 per cent. in 33 years.[1]

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[1] *Life of Dr. W. Lambe.*

The high cancer rate of Munich and Copenhagen has been remarked. Both of these towns consume much flesh-food.

In an investigation of the relation between the amount of cancer in a large number of countries, and of the prevailing habits of diet, it was found that of 25 countries using butchers' meat largely, 19 had a high or very high cancer rate, 5 a moderate rate, and 1 a low rate. Of 39 countries eating little or no flesh, *none* had a high cancer rate.[2]

Sir J. Rickman Godlee refers to the suggestion that the increase of cancer is associated with the dietetic habits of the people. He thinks that, although this needs confirmation, it constitutes a plausible explanation of the phenomenon in question.[3]

Dr. Douglas Macdonald remarks that the great increase of cancer in North Wales among the labouring classes has proceeded *pari passu* with the increase in the consumption of tea and meat. In many cases, he states, an excess of uric acid precedes cancer in the stomach.[4]

Dr. Robert Williams, of the Middlesex

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[1] The Hon. Rollo Russell

[2] Ibid.

[3] Quain's *Dictionary of Medicine.*

[4] Ibid.

Cancer Hospital, writing to the *Lancet*, declared: "Probably no single factor is more potent in determining the outbreak of cancer than high feeding. The gluttonous consumption of meat is likely to be specially harmful. Statistics show that the consumption of meat has for many years been increasing by leaps and bounds till it has now reached the amazing total of 131 lbs. per head per year, which is more than it was half a century ago, when the conditions were more compatible with high feeding."

"I have long thought," writes Sir James Sawyer, M.D., F.R.C.P., "that the accepted increase of cancer in England in recent years is due to the increased feeding of the population, and especially to increased feeding upon meat. . . . The malady has many of the features of a local growth of tissue elements and such appears to be favoured by excessive feeding, and especially by feeding excessively and for a long time upon meat."[1]

Butchers have one of the highest rates for cancer, as compared with those engaged in other occupations, yet it is not easy to suggest, apart from their habit of indulging in flesh-food and stimulants, why this should be. Their occupation is not one to which a man deficient in physical stamina would be attracted, their lives are spent much in the open air, and they get a variety of exercise. Yet Sir William Banks classes them with innkeepers and brewers, as having the highest mortality rate for occupations. They are considered as bad lives from an insurance point of view. In a scheme of trade and workmen's compensation insurance the rate for butchers is about four times that charged for bakers, booksellers, etc. Sir William Farr, in his work in the comparative mortality of occupations speaks of the mortality of butchers as being higher, for all ages under 65, than any other class, with the exception of innkeepers and beer-shop keepers.

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[1] *The Lancet*, March 24, 1900.

The recrudescence of cancer after removal of the morbid growth by operation is compatible with the suggestion that habits of diet are a factor. "Obviously," writes Dr. Rabagliati, "if the causes which lead to the formation of some growth or abnormality in the body, or to some local inflammation in it, are allowed to go on acting after the inflammation has subsided, or after the growth or abnormality has been removed, either a recurrence of the growth or abnormality, or, when that is not possible, some other abnormality or diseased condition must be expected to occur in the body. Many instances of this have come under my observation, as they must have done under the observation of every experienced practitioner."[1]

Dr. J. H. Kellogg, of the Battle Creek Sanatorium, Michigan, writes: "I am able to say that no case of cancer has ever occurred among the employees of the institution during the last forty years while they were in the employ of the institution, and I have never known of a case occurring among those who have been in our employ and have continued the non-flesh regimen after going away. I have never known but two cases of cancer occurring in persons who were flesh-abstainers, and these cases were of persons who adopted the vegetarian regimen at a somewhat advanced age."

The number of employees at the Sanatorium has gradually increased during 40 years to from 800 to a 1,000 persons. The number has averaged more than 500 during the entire period. Over 2,000 persons have been received into the training school for nurses, and 200 medical students have been received and trained. The great majority of the persons employed were below middle age, and had thus not reached the period when cancer was most likely to occur, but a considerable number have been at the institution for ten, fifteen, twenty, and even thirty years.[2]

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[1] *Air, Food and Exercises.*

[2] Letter to Mr. Rollo Russell, March 5, 1912.

Mr. Rollo Russell quotes from the *Daily Chronicle* a description of the Russian Doukhobors, who have been in existence as a community dating back to the middle of the 18th century. In the later years of the last century some 7,000 of them emigrated to Canada, and in 1908 there were, in spite of defections, 8,000 in that country.[1]

They refrain from fish, flesh and fowl as food, and subsist on fruit, vegetables and nuts. There is scarcely any illness; a year passes without a single serious case. No case of cancer has been known to occur among them.[2]

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[1] *Encyclopedia Brittanica.*

[2] *Preventable Cancer*, The Hon. Rollo Russell.

CHAPTER IX

BUTCHERS' MEAT IN RELATION TO GOUT, RHEUMATISM, SKIN DISEASES, ETC.

THE connection between what is usually known as "high living" and gout has long been recognised. As far back as 1734, Dr. George Cheyne remarked: "There are some cases wherein a vegetable and milk diet seems absolutely necessary, as in severe and habitual gouts, rheumatisms, cancerous, leprous and scrofulous disorders, extreme nervous colics, epilepsies, violent hysteric fits, melancholy, consumptions, . . . and towards the last stages of all chronic distempers. In such distempers I have seldom seen such a diet fail of a good effect at last.[1]

The effect of butchers' meat in promoting gout have been obscured by its stimulating properties. Dr. Alexander Haig, whose painstaking investigations have helped to throw much light on uric acid as a factor in disease, is insistent on this point, that a purely nitrogenous, or highly animal diet stimulates nutrition, clears the blood of uric acid, and starts an upward metabolism, and, *so long as the fires of life burn brightly*, the blood is kept clear of uric acid.

"But," he declares, "a time comes in

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[1] *The English Malady.*

every case when this stimulation is no longer possible, . . . and THEN NEITHER MEAT NOR URIC ACID WILL DO ANY MORE GOOD ; and then, instead of acting as stimulants the uric acid gets *at once* into the blood, and causes the most terrible depression of mind and metabolism."[1] (See also Chapter VI.)

A certain amount of confusion has existed in the public mind upon the subject of gout, it being customary to associate this disorder with the habit of drinking wine and malt liquors. Yet, consideration of the fact that gout is less prevalent in wine-drinking countries such as France, Italy and Spain, should lead one to look for some other cause—and it is a noticeable fact that, in the countries named, the consumption of butchers' meat is much smaller than in England.

" Gout is a disease which is due to faulty metabolism, probably both intestinal and hepatic, as the result of which certain poisons are produced. . . . It is well known that the excessive consumption of rich, nitrogenous food, combined with excess in wine and malt liquors, both induces and excites gout. . . . The subjects of gout are generally persons who live well and consume a large amount of animal food."[2]

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[1] *Uric Acid*, page 525.

[2] *Diet in Gout*, Arthur Luff, M.D., F.R.C.P., M.R.C.S.

"Gout," writes Sir William Roberts, "is the nemesis of high living. Of solid food the red meats and game are held to be more promotive of gout than the white meats and fish. Highly nitrogenised articles of food favour an excessive formation of uric acid, and therefore favour the accumulation of urates in the blood. Speaking broadly, articles of food of animal origin are richer in nitrogen than those of vegetable origin. They are also more attractive to the palate, and for that reason tempt to gluttonous feeding. The upper classes—who in this country eat meat two or three times a day—provide the largest contingent to the company of the gouty."[1]

Dr. Frederick Roberts states: "The gouty diathesis is chiefly promoted by foods which are rich in nitrogenous elements, and especially lean meat."[2]

A condition of health presupposes an equilibrium between the anabolic, or constructive processes, and the katabolic or destructive processes which are continually going on in every cell in the body. The nitrogenous or proteid elements of the food are converted into amino-acids and utilised by the tissue cells to replace tissue waste.

[1] Allbutt's *System of Medicine*, Article "Gout."

[2] See also Milner Fothergill's Opinion (p. 18).

[2] Quain's *Dictionary of Medicine*.

The katabolism of the tissue proteins produces ammonia, kreatinin and urea. Whether the excess of uric acid would occur as a result of the metabolic processes of the system, and without the introduction of purin-bases in the diet is questionable; but there is a growing tendency on the part of writers of authority, to agree as to the desirability of reducing the intake of proteid food, and particularly of butchers' meat, which introduces nitrogenous products at a stage of degradation and thus increases the strain upon the depurating organs and increase the amount of uric acid in the blood.

In speaking of chronic rheumatism, Dr. D. M. Paton states that, "it looks as if it were due either to a diminished elimination or an increased production of some toxic substance or substances."[1]

Referring to rheumatic fever, Dr. George Keith declares his belief that it is much more common than it was about the middle of the last century, especially among the young, and it leads to a large proportion of the cases of organic heart disease, which also tends to be much more common than formerly. "I have never in all my experience," he declares, "met with it in young or old, except when the diet had been full, and had consisted largely of beef and mutton, and the changed feeding of the young in this respect is to my mind, the main, if not the only, cause of the comparative frequency of acute rheumatism at the present day. I have been on the outlook for at least forty years for a case of the disease in a child or youth who has not been fed on red meat and I have not once either heard of or met with a clear case of the kind."[1]

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[1] Metabolic Diseases, *Encyclopædia Britannica.*

Amongst causes of boils, Dr. H. F. Waterhouse mentions: "over-indulgence in meat and alcohol, constipation, etc."[2]

Dr. H. S. Purdon, of the Belfast Hospital for Diseases of the Skin, states that "eczema is often due to gouty or assimilative debility of the stomach"[3]; and Dr. Piffard remarks that he has divided his eczematous clients into three classes, viz.—carnivorous, omnivorous, herbivorous. To the first he assigned those who were especially fond of meat, eating it three times a day, and consuming it with but a very small portion of bread and vegetables. In the second class were placed those who expressed no great fondness for meat, but who ate it in moderation, together with the usual portion of vegetables; and thirdly, those who disliked meat or ate very little of it, and whose diet was, in the main, vegetarian. An examination of the cases of eczema, to which he made note as to the points above mentioned, reveals the fact that 56 per cent. were carnivorous, 40 per cent. omnivorous, and only 4 per cent. herbivorous.[1]

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[1] *Fads of an Old Physician.*

[2] Quain's *Dictionary of Medicine.*

[3] *A Handy Book for Invalids.*

Dr. Purdon draws attention to the fact that eczema, known by the name of "red mange" is often met with in over-meat-fed dogs and cats. One never sees an eczema, he declares, in horses, sheep or cows."[2]

"I have frequently noticed," remarks the same authority, "how clear and healthy-looking becomes the complexion of those who have adopted a vegetarian dietary."

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[1] *Diseases of the Skin*, page 184

[2] Op. cit

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